THE PERFECT GARDEN

BY WALTER P. WRIGHT

Rose Ena Hartman. (Beef Red)

grain fig. — Abol X. spray.

THE PERFECT GARDEN

UNIFORM WITH THIS VOLUME

SATURDAY IN MY GARDEN

A Practical Guide to the Making and Management of Small Gardens

BY

F. HADFIELD FARTHING

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THE PERFECT GARDEN

HOW TO KEEP IT BEAUTIFUL AND FRUITFUL

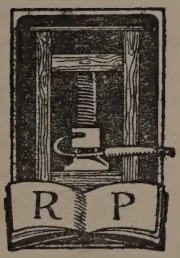
WITH PRACTICAL HINTS ON ECONOMICAL MANAGEMENT AND THE CULTURE OF ALL THE PRINCIPAL FLOWERS, FRUITS AND VEGETABLES

ILLUSTRATED WITH PLANS AND REPRODUCTIONS FROM PHOTOGRAPHS

BY

WALTER P. WRIGHT

HORTICULTURAL SUPERINTENDENT UNDER THE KENT COUNTY COUNCIL
AUTHOR OF "THE GARDEN WEEK BY WEEK"
AND EDITOR OF CASSELL'S "DICTIONARY OF PRACTICAL GARDENING"



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PROLOGUE

DREAM GARDENS

DREAM GARDENS, and yet real gardens—the gardens which have been seen in past days, and the fragrant essence of which, expressed in the still of memory, comes back with tenfold sweetness, to give us the impulse for making beautiful gardens of our own.

Time deals very kindly with these gardens of our dreams. It winnows out all the little sharp husks of imperfection—the weedy corner, the ill-placed shrubbery, the incongruous bed—and preserves only the solid grains of general effect, of collective beauty. It invests them with a golden glamour.

My "dream gardens" are those which I see again by the winter fireside. The lawn outside may be deep in snow, but in fancy it is flooded with sunlight, and the heart of the countryside is palpitating with the passion of life. The dreary present is forgotten, and I live in a past that is green with the Spring garment of the forests, and glowing with the Summer livery of gardens.

I dream of a fair Kentish garden, within a mile or two of sleepy Hythe. I see it as I saw it first, at dawn on a June morning. I had come to it fresh from fierce, chill Highland dawns. I had gone from Stirling to Bannockburn, from Bannockburn to Aberfoyle, and then through the gleaming heather hills to the sides of Loch Vennachar. From Callander I had steered for Loch

Lubnaig and Lochearnhead, then passed through Glen Dochart to Tyndrum and Dalmally, made the northern curve of mighty Loch Awe, and so gained the shores of Loch Etive and Oban. There, in the June morning, the grey mists cling late to the twin peaks of Ben Cruachan, separating themselves slowly and reluctantly from the departing shadows of night; and when dawn breaks at length over lake and mountain—over the lofty summit of Ben Eunaich, over the wild slopes of the Pass of Brander, over the shining waters of Loch Linnhe—it is a dawn of twirling mist-wreaths and opal cloud-banks; a dawn of cold fires, half quenched in their birth; a dawn of titanic struggle between the chill vapours that the great hills breed and the ever-strengthening beams of the sun.

In this sweet garden of Kent the dawn breaks with the softness of a benison. Tender glows steal over the forehead of the Downs, and spread towards the sea. The morning lights creep towards the garden with the soft, stealing motion of the slow marsh waterways. The garden lies almost under the shelter of the Downs—a mere thread of valley, shut in to the north by a friendly spur, sheltered from the east by a wood, and enjoying a climate of its own. Within a mile or two are bleak slopes, with a sward that will only support a rough, hardy class of stock; here vegetation is luxuriant. The cool, deep, peaty earth, the humid atmosphere, the shelter, all combined in one little plot of an acre or two, form ideal conditions for rhododendrons and azaleas, for rambler roses, for clematises, for daffodils, for primulas, for the hundred and one beautiful plants that love soft air and moisture.

The tender dawn lights, penetrating with their soft persuasiveness the sheltering belt of tree foliage, fall on

banks of rhododendrons—plants as massive as orchard apple trees, with flower trusses as large as vases, whose great crimson urns glow with hot fire in the fresh morning rays. The orange and salmon and cinnamon of the azaleas shine like burnished copper. On a tall column of wellingtonia, dismantled by a gale, sprawls a mountain clematis, its sprays of pallid flowers clinging to the worn, brown trunk like a babe to a peasant grandmother. A splash of purplish red by the side of running water indicates a colony of Japanese primroses (*primula japonica*), and on a wild bank the last flowers of a colony of poet's narcissus shine.

I have seen this garden in all its phases—in Spring, in Summer, in shower, in sunshine—but it is as I saw it first, in the flush of a June dawn, fresh from the chill and ghostly splendour of the Highland mornings, that its beauty was most appealing. Then it glowed and shone with all the gracious warmth of the South—hot, generous, impulsive, irresistible.

One of the fairest gardens of my winter dreams is a rose pleasaunce. Near the half-way stage of a long hill in the heart of the Kentish Downs, a range of glass houses is seen over the top of a lofty wall. A wicket gate invites an entry, and a courteous head gardener willingly shows the way to an inner garden, also wall enclosed. In the days when royalty held the demesne this was a prosaic kitchen garden, but later it was turned into a rosery, a fresh vegetable garden being made in a place farther from the house.

There were fruit trees here of old time—gnarled, lichen-encrusted veterans, venerable, hoary, but not altogether incapable of a slow, hobbly, creaky, joint-twisting attempt at bearing every two or three years. They were relieved of this onerous duty, and given a

lighter one—that of supporting climbing roses—after their upper branches had been pruned back. Sweet young rose and crabbed old apple—seventeen and seventy! See their wooing in the summer breezes. The flower-laden tresses of the rose bend towards the weather-beaten trunk, touch it lightly with perfumed lips, and then spring away. Sometimes they twine themselves around it, and droop their bud-laden crests over its grey crown in tender, soothing caresses. On boisterous days they are frankly sportive, and lay the lash on the flanks of their decrepit steed to a merry tune.

Arches and pergolas span the paths of the rose pleasaunce. The long green rods stand erect by the brown larch pillars, as vigorous and supple as ash saplings; and the flowering laterals swarm overhead like gay tropical birds. Crimson Rambler and Carmine Pillar, Dorothy Perkins and Hiawatha, Félicité Perpétue and Reine Olga de Wurtemburg, Ards Rover and L'Ideal, Dundee Rambler and Maiden's Blush—roses red and roses white, roses copper, carmine, pink, crimson, and yellow—fling their sprays from arch to arch. It is a riot of roses—a mêlée of soft, fluttering shapes, as full of life, of grace, of swift, sinuous, elusive movement, as the play of the fawns in the park beyond the walls.

And I dream of a sweet-pea garden. This has no old-time flavour. It does not steal into my winter musings with an association of grey, staid orcharding, or of stiff yew alleys and sleepy sundials. It is modern, strenuous, fiercely vital. The flower is in the fire of transformation by the florist, and new varieties pour out hotly, like the editions of evening newspapers. But the exquisite forms and tender tints are a revela-

tion of grace. The wavy "standard," as delicate as a tracery of lace, the curved "wings," tinted and shaped like the ears of nymphs, have all the appealing charm of the soft features of beautiful children.

It is a dance of butterflies that one sees where the rows and clumps of the sweet peas stand. The blossoms hover around the sticks like glittering moths, now poising themselves immobile, now fluttering away. Daily fresh hosts appear, and the more regular the harvest the more persistent the crop. The reaper multiplies by reaping.

I dream, too, of a water garden, lying cool and reposeful in the heat haze. I see the great, radiant stars of the nymphæas cushioned in the shadowed water. Ripples of light run along the surface, and play among the reeds. The slender stems of the sedges sway idly. Fat brown stems quiver away into the cool depths. Here and there plump, chubby buds peer out, listen, and then, unrobing little by little—suspicions only half disarmed—disclose an adorable bosom of tender pink. The blue nymphæa shows the reflection of an unclouded sky, the yellow borrows its delicious shade from the Medea rose growing near by.

The water garden, tree-enclosed, is the playground of the shadows, and its tranquil beauty grows more pleasing from its very changefulness. Soft and soothing in the hot noontide, it throws a slumberous spell over the artist and the reader. And in the still summer night it is full of tender whispers.

Other dreams! In the raw of an April morning I have led my bicycle across the gangway of a Great Eastern steamer at the Hook of Holland, and am riding towards the Hague. My first objective is Leyden, my second, Haarlem. Between the university town and the flower capital lie the radiant acres of the bulb farms,

where, from March to May, the flower-lover may ride for miles amid crocuses, daffodils, hyacinths, irises, and tulips. The lofty spire of Haarlem's great church stands as the central object of a world of flowers. One spends a happy morning at Bennebroek, at Hillegom, at Overveen, or at some other sweet flower village; is drawn to a recital on the great Haarlem organ, or to an hour with Cuyp in the picture galleries, during the afternoon; and then joyously fills the fragrant spring evening with another ride among the flowers. And in the winter gloaming sweet remembrances come — of a whole countryside burning with the fierce glow of tulips, of somnolent windmills, of slow barges creeping along the canals, of the perfume of hyacinths in cottage gardens, of square, quaintly-clad peasants stolidly staring.

Or the flower-dream may be of Cornwall, whose gardens are as imperishable as her rocks. I ride forth from Penzance, and steer towards Land's End. I mount a long stiff slope, descend another, cross the high-road to St. Just, and on my right find a pretty, flower-covered lodge. A long, winding drive, flanked with shrubs, leads me into a beautiful pleasaunce, where mighty rhododendrons hang out their glowing lanterns of flowers, where azaleas glisten and sparkle; where magnolias, pallid as distant stars, shine on bare stems; where golden streamers of forsythia, fiery clusters of crimson thorn, and drooping racemes of laburnum, shine; where silvery clematises clothe gnarled pillars; where larch and pine rise in tall columns, where cypresses spread plumes of green and bronze. Beside the winding paths cushions of coloured primroses, auriculas, and polyanthuses clothe the ground. Anemones sparkle in the undergrowth. Colonies of squills, grape and feather hyacinths, and forget-me-nots, form happy communities.

In the rockeries irises gleam, and broad mats of arabises and aubrietias cling to the face of the stones.

The picture of this fair Cornish garden lingered with me when I stood on the cliffs at Land's End, watching the white surf spouting around the Longships lighthouse; and when I picked my way over the stone-strewn but beautiful road which leads by Morvah and Zennor to St. Ives. But clearer still, and fairer, I see it now, by my fireside, on a night of winter tempest. Memory paints it in faithful detail, with a brush that lingers lovingly. And she brings, on her gentle wings, not only the odours of long-dead flowers, but the sweet balm of hope, which whispers of roses, and sweet peas, and nymphæas that will come again, when Spring shall advance out of the South with the smiles of a bride, and turn to reality what now are only dreams.

PART I

THE OUTLOOK

CHAPTER I

THE SOUL OF THE GARDEN

THE garden of reality takes shape gradually from the gardens of dreams. Out of the maze of beautiful features which have been seen a few stand out in the memory, at first isolated and inchoate, but presently blending and merging into a whole.

The definite plan of a garden is developed almost like the conception of a complex human character. One is attracted to it, but baffled by it. There is much to admire, but little to grasp. Perfect comprehension will not come at a bound, and it will not come at all unless there is innate sympathy, a measure of intuition, and a wide, unprejudiced outlook.

The trouble lies in the difficulty which people have in harmonising the practical with the ideal. In the garden, as in the human being, they see certain characteristics which appeal to their best instincts. The beauty of a rose garden stimulates them like the eloquence of a statesman. They find the same intellectual pleasure in a good herbaceous border as in the performance of a great actor. But they find it as difficult to imagine that the rose garden is built on ordure as to comprehend that the cabinet minister has climbed upwards by devious paths of party strategy; and they have no clearer comprehension of the methods by which the herbaceous border is put together than they have of the secret dressing-room processes by which

the shaven, square-jawed stroller in the Strand is converted into the picturesque hero of opera or drama.

To say that women have the greatest difficulty in effecting this harmony is merely to repeat in another form the platitude that their emotions outrun their judgment. Women have the capacity for getting greater enjoyment out of gardens than men, but not a greater power of forming them. They love flowers, and, forgetting that affection does not always suffice, sometimes crowd their gardens with far too many kinds. In many cases they merely plant them, they do not grow them. It is delightful to collect plants in one's travels. The flowers are pleasing in themselves, and still more from their associations—for the beautiful places, the pleasant companions, they recall. But every garden has its limits, and a small one quickly becomes so overcrowded that the plants suffer. This does not make for perfect gardens.

There is nothing more calculated to appeal to the ideal in human nature than a beautiful garden, but it would be as foolish to confound appreciation with creative capacity in gardening as to associate enjoyment of music with the ability to sing. There is reality in the study of gardening, as in that of music. There is plant study, soil study, manure study, tool study behind successful work. There may be something of drudgery in it, as in the practising of scales, and in the writing of novels. Success rarely comes at a bound.

A beautiful garden represents the sum of idealised human effort on practical lines. It cannot be made out of charming phrases. The eloquence of the political orator may stir an audience to momentary enthusiasm, but unless the speech is based upon Hansard, the *Encyclopædia Britannica*, a particular blue-book, and certain economic truths, the ultimate result will be failure.

The psychology of a garden might be made as interesting a study as the psychology of a human soul by a deft anatomist. It is the expression of a human spirit, animated by complex feelings—by love, by a yearning for the companionship of beautiful and dependent things, by a vague, indeterminate discontent with the earth as it is, by the irresistible impulse to find vent for emotions which one is reluctant to expose to one's fellows. In gardens is expressed what the flower lover is unable to express in painting or in poetry. They are the record of an art which the world does not see, of verse that it does not hear.

If a human soul is not coherent, it is because it lacks that knowledge of selection and restraint which is required to visualise its emotions, and make them interesting and helpful to others. Impulses towards the ideal are impeded by inaccurate conceptions of the real. The actual and the abstract are in conflict.

The soul of the garden often has the same singular contrast of reality and abstraction, because it is the expression of a human effort in which impulse is not in union with knowledge.

There is a moment in the work of every novelist when the story which he is writing commences to fight for its head. If he be a beginner he exults. Inspiration has come at last. He has been piecing his work together by slow labour hitherto, now the joints fall into place of their own volition. The story proceeds henceforth to tell itself; he, the reputed author, is merely the automaton which dips the pen in the ink. He surrenders himself, a willing slave, to the domination of a beloved master. The experienced craftsman knows better than this. He is aware that the moment when the story begins to tell itself is the crisis of his

work, that he is at a parting of the ways, and must either retain possession by a supreme effort of will or be carried on to failure. For stories cannot tell themselves; they do not know how to do so. They have not learned the art of "construction"; they do not understand "restraint"; they are unfamiliar with the meaning of "anti-climax"; they cannot create "atmosphere."

Gardens are as incapable of making themselves as novels, but even more ready to take the task in hand, and bring confusion upon their owner. They stimulate emotion as effectively as human characters and situations, and it is in this mental excitement that the most mistakes are made. The companionship of flowers exercises a far more potent influence on some minds than the companionship of either real or fictitious people, and it is precisely these minds that are the most liable to be carried away.

In a sense we are all gardeners to-day. Cultured people talk of gardening as they talk of books, and paintings, and music. Not to know something of climbing roses, and irises, and phloxes is as grave a dereliction as to be ignorant of art. A knowledge of gardening is a part of education. But the making of a garden tests the depths of education. It concentrates the knowledge of life, the judgment, the taste, the character, on an acre or two of bare earth just as they are concentrated on the three hundred pages of a novel. Any person of culture can appreciate a beautiful garden, but only a genius can make one without preliminary study.

Nature is not the truest guide to artistic gardening. She is sometimes forcible, but she is invariably crude. She uses flowers, as she uses tragedies, without any

thought for effect. Her work is merely the outcome of the instincts of reproduction, and of killing. Primal instinct may lead rival to stab rival, and he does it with no consideration of setting or background; murderer and victim do not place themselves so that the limelight shall fall on their hate-distorted and anguish-twisted features. It is blow—cry—flight! The murderer goes with blood upon him; he uses his own knife; he tries to burn his stained clothing, but only half succeeds. There is no "mystery," which detectives solve at the thirtieth chapter; all is plain, gory, elementary. And Nature flings plants about very much as she flings blows. They grow where the conditions suit them. It may be that they have a beauty of their own, but it is not the beauty of educated thought. The flowers are not there to express ideals of beauty; they are there for increase.

There is an art which transcends all that Nature can do in gardening, and it is to make an intimate study of good plants, and to give them such conditions as to aspect, soil, manure, and pruning as shall give them a fair chance of making handsome individuals. Is not a Venus of Milo worth a million plaster casts? To collect a scrap-heap of weeds from every country in Europe, and then fling clinkers among them, is not to make a garden. There is a danger of a cult of horticultural hotch-potch growing up, every whit as preposterous as the bedding craze of years gone by.

Before a person becomes a garden-maker he should be a practical plant student. A practical plant student is a natural gardener, because he learns what plants want, and is resolute to give it to them. A beautiful garden will grow up on this spirit better than on theories of design and the laws of landscape gardening.

It is not pretended that a knowledge of plants will make mistakes in gardening impossible. A first study of plants is generally of a somewhat academic character, and theories about their uses are formed prematurely. It is concluded that what looks well on paper must look well in the garden, and, even with good plants, disappointment ensues. But the point is that good plants inherently make good gardens, and mistakes in arrangement are easily noted and remedied. If the strategy is correct there is a margin for covering defective tactics.

The value of our "dream gardens" is that they give suggestions for beautiful arrangements. They do not so much teach us to know plants as to dispose them in effective ways. We can rarely make a copy of a garden that will equal the original one, any more than we can reproduce a Rembrandt with absolute faithfulness. But with good plants at our command we can often introduce one feature from this garden and another from that, and so build up a unit of our own, the cumulative effect of which is satisfying, and at the same time bears the impress of individuality.

The greatest mistakes in garden-making arise from ignorance of plants. Errors of effect and errors of economy both spring from this cause. Plants are not like bricks and stone, steel and wood. With so many thousands of bricks, so much mortar, and so many yards of timber, an architect will construct a more or less handsome building, the merits or defects of which, viewed externally, are entirely dependent upon his design. But the garden does not stand or fall by design alone, because its components vary under conditions of aspect, climate, soil, and cultivation.

It is often the case that people make a garden, and

then commence to learn about the plants in it. They ought to first study the plants, and then make the garden. A study of beautiful plants is a liberal education. It does more than make gardens; it makes characters. In the whole world of animated Nature there is nothing more beautiful than a wild rose except a cultivated one, and the superiority of the cultivated rose does not lie so much in its own virtues as in the fact that it is grown better. To cultivate good plants in such a way that they attain to the utmost beauty of form and colour of which they are capable has the same humanising effect as training a child. The good influences at work are reactive. The simplicity of the young mind corrects the didactic tendencies of the old. The fresh, spontaneous sympathies and impulses of the unformed intellect give new life to the fading fires of the matured one.

When gardening is interpreted as the study of plants and their culture, it presents itself in its highest phase. It is education in action. To grow plants well is to love them; to grow them well and love them well is to arrange them well. The majority of women dispose flowers artistically in a vase because they have strong affections. A sense of the beautiful springs out of love. A man does not love cut flowers as a woman does; consequently, he does not, as a rule, arrange them with equal grace and taste. The majority of men have no real love for cut flowers, and professional gardeners hate to see them taken from the plants; forgetting that, generally speaking, the more a plant is cut from the better it blooms.

Taste in gardening is educated love. Affection gives the impulse, knowledge the guidance. Love is the road, education the lamp that lights it.

CHAPTER II

DESIGN, AND THE HOME-MADE GARDEN

DESIGN has long ruled with tyrannical sway over British gardens. It is to the landscape gardener what the crown is to the monarch—the symbol that impresses the multitude with respect and awe.

When the garden designer is first summoned it is generally with the idea of a consultation, in which opinions will be interchanged. He will suggest this, we shall suggest that. We shall tell him of the many beautiful features that we have seen or thought of, and he will listen sympathetically, approving here, throwing out hints of improvement there; and so, one stimulating the other, with pleasant mutual reactions, we shall arrive at that harmonious understanding which promises success.

But this is reckoning without Design, which has fastened on the landscape gardener and made him its prey; and which now prompts him to fly to pencil and cartridge-paper. He desires, in his heart, to give us what we want nearly as much as we want it ourselves; but he is over-ridden by his training. So we get our plan, draw our cheque, and make the garden. It is not, however, the garden of our inmost selves. It is a garden that we admire, and even develop an affection for, but it is a sort of foster garden, not bone of our bone, and flesh of our flesh.

Design rules what is termed the informal as strictly as it ruled the formal garden. Rockeries, borders, and arches are as stereotyped as terraces and geometrical beds once were. One place is marked out for a pergola, another for a shrubbery, a third for an arbour. There is no scope for individuality. Worst of all, there is a deplorable cramming in of a multitude of plants for which not a spark of real affection exists, and which, consequently, are not well grown. Thousands of people deplete their purses and sour their lives over rock gardens, which have nothing in common with the configuration of the place, and are hustled in by main force. Granted that among Alpine plants are to be found some of the loveliest of floral gems, it remains the fact that a rockery is often as much out of place as a solitary rose arch in the middle of a walk.

The writer has recollections of a grassy bank, somewhat shaded, in the garden of a friend—a bank sloping to water. Of course, it was the ideal place for a first blush of snowdrops, a second of daffodils and poet's narcissus, and a third of foxgloves, with willow herbs near the water. But it was seized upon for a rock garden, and there followed such excavating, such carting in of stones and soil for mounds, such windings and terracings so that the water could trickle down from stone to stone, such forming of pockets, such arranging of "aspects," such poring over catalogues for plants, as never were before! It cost nearly £100 to turn a corner of beautiful repose and peace into a paltry and contemptible imitation of an Alpine nook. Such are the enormities practised in the sacred name of Nature!

In nine cases out of ten the garden that grows under the hands of those who love flowers is more beautiful than the garden that is designed, just as the schoolgirl's

first effort at a bouquet is generally more attractive than the last example of the art of the trained male. If a finished garden is a failure, it is much more likely to be because the worker did not know his plants than because of the absence of a plan.

Gardens, like plants, ought to grow. They should not be made to contract within a specified time, like an asylum, or a block of Poor Law buildings—which, with a peculiar sense of the appropriate, usually work out at about £500 per bed! The class of garden that is made to order is the one that its owners spend no time in, because they are too much engrossed with business affairs. There is no reason why a mining magnate should not have a garden made for him under contract just the same as he has a new wing put on to his house, but he will not garden for himself; he will have a staff of trained men to do it for him. He is not a gardener. He likes to see his dinner-table brightened up with plants and flowers, and he likes to have an adequate dessert, but he makes no pretence at taking plants into his life, and making them constant, dear companions.

There is joy in planning a garden for oneself, but there is still greater joy in making changes on that plan when the actual gardening is being done. It is like the motor tour. Directly the car is ordered maps are brought out, and the first tour arranged to the smallest detail. Here we stay the first night, there the second. The itinerary gives us an hour in this town, two hours in that. The speed is to be a uniform 18 miles per hour, and the actual driving-time is to be exactly six hours, so that we cover 108 miles per day. What really happens is that we overrun our first resting-place because we have got entangled in a duel with

another car, and fall short of the second owing to a punctured tyre. Somebody at an hotel tells us that our road is "up" a few miles ahead, and suggests a digression for the sake of getting a better running surface; or we are warned that there is a police trap over a certain stretch (as if police traps had any significance for people travelling 18 miles per hour!) which can be avoided by a certain détour. We learn of bits of scenery, of picturesque churches or ruins. And so, going where the impulse of the moment leads us, we arrive at our destination at a time, and by a route, quite different from our original itinerary. But we get there.

If we develop gardens on this somewhat incoherent plan shall we not find that, like the budding novelist, we have been run away with—that the story has told itself, to our complete satisfaction at the moment, but to our dire discomfiture when the critic lays on the lash? Not if we know our plants intimately, and have an eye to colour. While plants grow under our hands from seeds, and cuttings, and layers, all sorts of ideas will come to us for using them—ideas that have nothing in common with the smell of the lamp. We shall see how these fit in with our original design, and if they do not harmonise we shall throw overboard one or the other—often the plan.

When we accept Design as the ruler of the garden we have come to finality. The garden has to be laid out in such a way, and *is* laid out in such a way. Dare we afterwards alter it? A thousand times no. The garden is a finished work of art. It is complete. To interfere with it were sacrilege. The most that we dare do is to pass a reverent duster over it, and that in fear and trembling, lest we deface it.

The garden that grows is always changing. A mis-

placed bed is not like the laws of the Medes and Persians, fixed, unalterable. A few square yards of turf, or a pound or two of grass seed, and the bed is wiped out; it is as though it had never been. And if we find that the pretty spring dell which we were so keen upon proves to be disappointing, with a load or two of shingle and a few bags of cement we can line the bottom and sides, and turn it into a water-lily pool.

People who take plants into their lives should never be content to let alien hands arrange them, any more than they should permit their drawing-rooms to be finished off by the decorators. Outside help must come in, it is true. The shovelling out of earth, the beating down of turf, the wheeling of manure, are as obviously the tasks of hired labour as the papering of walls and the laying of carpets. But beyond this there should be nothing done in which the hand of the owner is not prominent.

Home-made gardens are full of possibilities of both good and evil. Like home-made bread, they may be either heavy and indigestible, or light and wholesome. The leaven of good sense is wanted in them. Fixed proportions of flour, water, yeast, coal, and time, make, in theory, the perfect loaf; but in practice they often yield a close mass. So many plants, so much manure, will not in themselves make a garden; the yeast of taste and knowledge is wanted also. The magnitude of the issue must be the stimulus to study. Is the garden less a part of the home than the rooms? Are the plants less interesting than the chairs and tables? If the garden grows under the hands of the owner it will be an integral feature of the home. The two will never be thought of as separate units, but always as one. And if the plants which make up the garden are raised by the

garden-maker they will grow into his life as loved children do.

The union of home and garden is a sacred social duty. The garden not only creates beautiful pictures and delightful odours, but pure thoughts, high aspirations, and noble ideals. The garden-home is the seat of the purest affections, the truest outlook on life, the highest conception of humanity. For the writer's own part, he cannot see the tragedy of commercial life in all its grimness and pathos amid the roar of factories, and in the jostle of fetid streets. He is overcome there by the gregarious instinct, oppressed by the inertia of inevitability. The tendency to become one of the crowd —to be carried away on the stream of human impulse, to drift in an atmosphere of irresponsibility, to have individuality merged in the collective helplessness of the mass; and to yield to the hopeless, humiliating conviction that this vulgar and squalid strife of conflicting interests is the best that the world can do—this tendency is almost irresistible. But in the quietude of the garden he escapes this sucking-under of personality, this numbing of volition. He sees the social system in its true perspective. He sees, too, that if, and when, he can make of the slum-dweller a gardener he will secure for him also that aloofness, that detachment, without which it is impossible for him to see and understand the problems of his existence.

In so far as Design harnesses a sense of order to the gardening impulse it is good, but when it goes farther, and paralyses initiative and individuality, it is bad. It must never become the master, but always remain the servant, of the garden-maker.

CHAPTER III

THE COST OF GARDENING

ALTHOUGH there is much of the purely ideal in gardening, it cannot be dissociated from such practical matters as bank balances and the payment of debts. Florists and seedsmen are an admirable body of men, often as much interested in plants for the sake of their beauty as for the sake of the profit they bring; but in the end they like to have their bills settled. There is no purpose served by divorcing gardening from the ordinary rules of business and common sense.

There is always a certain necessary capital expenditure on making a garden, just as there is in building a house, and in both cases there is the further cost of furnishing and upkeep — a very variable quantity. Would you have your hall panelled with oak, and your walls hung with pictures by artists of the highest standing? Would you refuse to buy a table or a chair which did not have a history? Would you have a large staff of servants, and entertain extensively? These are the questions which decide your household economy. And there are corresponding questions connected with the garden. The extent of the glass houses which are erected has an important bearing, because they involve a current as well as a capital expenditure, for instance, in heating and skilled labour. Almost more important is the point as to whether the garden is to be kept

alive with an expensive diet of novelties, bought annually at special rates, or is to be sustained with plain, wholesome, everyday fare, raised at home.

Many people impoverish themselves in a most painful and unnecessary way by gardening. A set of garden accounts for a year were once placed before the writer, and he saw that they amounted to £3000. Of course, it was a large place, but even so, the sum was considerable. What was got for it? A pretty rose garden, a lawn, shrubberies, some flower beds, a collection of chrysanthemums, two houses of carnations, a house or two of table plants, vineries, peach houses, a kitchen garden, and a fair collection of fruit trees. The amount did not include anything for capital expenditure; it was cost of upkeep alone. And there had been practically no money spent on new varieties of plants; dahlia novelties at 7s. 6d. each, new orchids at anything up to £500 a piece, new daffodils at £20 a bulb, had been left severely alone; the owner had merely indulged in "necessaries." To numbers of people, however, new dahlias, orchids, and daffodils do not appear in the light of luxuries; they are ordered just as naturally as beef and mutton. Florists make their best profits out of novelties, and this is well enough for just so long as it is assessed at its proper value. When novelties are regarded as the beginning and the end of gardening, and lead to thoughtless people spending more than they can afford, then becoming embittered, and checking the expansion of gardening by mournful tales of its costliness, it is not so well. Gardening is expensive to those people who have a passion for possessing every new thing, but then, so is dressing. Just as folk may go to church in decent broadcloth, and cut a fair figure in society,

without spending half their income on dress, so it is possible to garden with credit and success without having, in the end, to "consult one's creditors."

In the development of the garden from the wild, it is prudent to consider expenditure under the following heads :—

1. Acquisition of land.
2. Ground labour.
3. Erection of buildings (if any).
4. Stocking with plants.
5. Purchase of tools and implements.
6. Annual upkeep.

Under the first heading comes the important question of area. Various considerations hold sway; conflicting requirements have to be reconciled. Many a man who struggles on in a large house would live in comfort in a small one were it not for fear of neighbours. A cottage is one thing, one of a row of cottages is quite another. And so with the garden. "An acre would be quite enough for me, but if I only buy an acre, how do I know who will come on the other side?" Dead weights of unneeded land are hung round groaning necks, for fear of the other people who might buy it. The consideration occurs that it were better worth while to study the art of living in peace and amity with neighbours than to impoverish oneself in keeping them away; but that is a matter of social ethics rather than of gardening.

Viewing the question horticulturally, we raise, in connection with the matter of area, the question of labour. No one who proposes to do all his own gardening should allot himself more than an acre. Four square roods of flowers, fruit, vegetables, and grass will fill most of the time of an active man or

woman. The extension or reduction of any of these four sections will not materially reduce the labour. There is a common delusion that grass economises considerably. It only does so to a very slight extent, if at all. Weeding, sweeping, mowing, and rolling are all needed to maintain a perfect sward. Shrubberies are perhaps the greatest economisers, but even they demand their share of time. Manuring, digging, weeding, and pruning are all necessary in their seasons.

Those who cannot do their own gardens, and have to employ labour for the purpose, will be prudent if they make their calculations on the basis of a man an acre. Should there be no glass, a second acre could be controlled with the addition of a boy instead of another man. The cost of this labour will depend partly on its class, and partly on the district. The average, trained, single-handed gardener expects a minimum wage of £2, 10s. to £3 a week; a labourer in the country may serve for £2.

The ground labour demanded in reclaiming the wild must necessarily vary. If it is plain turf, fairly level, there will be little outlay. The turf has a face value of threepence per square yard, and shows a profit on lifting. What is retained will serve, after being stacked for a few months, as potting soil. The lawns can be made by the mere rolling, manuring, and mowing of the pasture. If it is arable land the lawns will have to be made by laying turf, or sowing seed.

Money is often wasted in the ill-considered shifting of great masses of soil under the malign influence of Design. There are many places in which not a single spadeful of earth need be moved, except in the process of digging. The mischievous delusion exists that a garden cannot be a garden unless holes are dug out

here and mounds made there. People fail to realise that whatever unevenness of outline is desired can generally be secured far better by the inexpensive utilisation of carefully chosen plants than by the laborious processes of navvying. Borders must be made, of course, and in them the spade should be freely used; it should not, however, be in moving soil away, but in deepening and manuring it where it lies, for the nourishment of those fine breaks of colour which, as we shall presently see, are to be the abiding glory of the garden.

Ranges of glass houses are one of the most costly components of a garden. Some of the most beautiful of modern gardens have no glass, save perhaps a frame or two in which to raise seedlings. Modern flower gardeners do not admit the necessity of glass. They consider that it is cheaper to buy the forced fruit, vegetables, and flowers which they want than to grow them. And a conservatory, so far from tempting them the most, does so the least, because they know that of all types of structure it is the most unsatisfactory for plants. A conservatory may, of course, be considered an advantage as a lounge, but in that case it should be deemed rather as an annexe of the dwelling-house than as a part of the garden.

Those who consider that a garden would be incomplete without glass houses must consider them in relation to two items of expense—cost of construction, and cost of upkeep. Structures of fair quality may be expected to cost about £2 per foot run, including heating. A common type of house can be bought cheaper, a superior one much dearer. Where a vinery, a plant house, a conservatory, and frames are wanted, it will be wise to allow for the cost of an extra hand

in addition to fuel. People who try to run a two-acre garden containing several glass houses with the sole aid of one "odd man" lay a heavy burden of care and worry on their shoulders.

The cost of stocking a garden of any given size with plants is as difficult to calculate as the expense of furnishing a drawing-room. You can stock an acre for a few pounds, or for several hundreds of pounds. The great thing to remember is that it is not in the least necessary to spend a great deal of money. Seedsmen and florists make a great feature of "collections" nowadays. One can buy a collection of 1000 bulbs at a reasonable price, and a box of vegetable seeds that would suffice for any ordinary garden for a few shillings. The hardy-plant dealer will sell 100 rock plants for fifty shillings. The rose grower will supply excellent roses at from ten shillings to thirty shillings a dozen. Capital fruit trees are purchasable at two shillings each. Boxes of flower seeds are offered from half-a-crown each upwards. And so on. Observe, these are not "clearance sales" of odd rubbish. They are the ordinary stocks of reputable houses, who will put labels on the things they sell. Job lots are often to be picked up through the medium of auction sales, or advertisements in the gardening papers.

Tools and implements can hardly be bargained for. They are not sold in "collections" as a rule, nor are there auction sales for them. There is not much variation in the range of prices. Spades and forks of good quality will cost 5s. 6d. to 10s. each wherever you go. Hoes and rakes are an unimportant item. A good wheelbarrow may cost £1, 10s. The greatest range of prices exists in connection with mowing machines. A 12-inch machine is as large as the average

mower will care to push without assistance, and it can be bought for £2, 10s., or for £6 to £8. It is best to buy a high-class machine, as it will do its work easily, and cost very little for repairs.

The charges for annual upkeep will include wages, seeds, manure, fuel if there are heated houses, and the addition of new varieties of particular flowers, such as roses, carnations, and dahlias, if the gardener elects to specialise. The last is so important an item that the greater part of the cost of the garden may be expected to turn on it. One could stock an acre of garden with beautiful flowers at the cost of one small bed of new carnations, which a hungry rabbit may eat off in a night.

One of the most economically conducted gardens that the writer knows is also one of the most beautiful. The whole "estate" amounts to about ten acres. Half consists of meadow, which is fed off with sheep, except for a crop of hay every other year. A quarter is orchard, of which geese, turkeys, and fowls have the run. These are supposed to pay for themselves, and leave a balance. The remaining quarter garden proper, comprising lawns, flower borders is (no beds), kitchen garden, and fruit trees. There is no glass of any kind; it is an outdoor garden pure and simple.

The owner of the place is a believer in the "simple life." He has no profession, and spends several hours of every day in the garden. He is never hurried, never worried. He employs no gardener. An "odd man" from the village helps him with the rough work when wanted. He never buys a novelty. He never labels a plant. He has abundance of fruit and vegetables to eat and some to sell. He has a charming flower garden. He has plenty of cut bloom.

We agree cordially with the horrified professional who declares that this is not horticulture at all. It is a mere toying with the sacred art—if, indeed, it is not something worse. A certain Mr. Snipper, head gardener at the Squire's, was invited to walk round, and respectfully, but firmly, declined. He had no objection to people managing their places as they thought proper, none whatever. He was a broad-minded man, and his motto was live and let live. But he had to consider his position. This was a dignified and proper attitude for Snipper to assume. Gardening is gardening, after all. Snipper is to be respected. He is a distinguished ornament of a noble profession, and as far as in him lies he is going to maintain its great traditions. The worst of it is that the culprit cannot see what he is doing wrong. He has a thoroughly good time of it in his garden, he makes it pay its way, and Snipper is a stock jest with him.

CHAPTER IV

SPECIALISM IN GARDENING

To combat the idea that gardening is necessarily expensive is to do it a great service, and to confer a real blessing on the country. We cannot be a great nation in the best sense until we are a nation of gardeners, and we cannot be a nation of gardeners until we have learned to take a practical view of gardening.

Why do people, when they take to gardening, allow themselves to fall victims to Specialism? Why do they permit themselves to be hen-pecked by a flower, or, for the matter of that, by a class of flowers? An ordinarily intelligent person, with a due sense of economy in business or household matters, often becomes the readiest prey to Specialism. The reason is that he is unable to distinguish between essentials and embellishments.

The writer has nothing whatever to say against dahlias, or rock gardens, or sweet peas. He has not the remotest objection to their being specialised (as a matter of fact, he specialises in one of them himself), provided it is done by the right class. The point he wants to establish is that specialism is not the ruler of gardening—a sort of flower-crowned autocrat without whose smiles success cannot be. Just as there can be specialism without gardening, so there can be gardening without specialism.

On the face of it, there is at least as good a case for simple flower gardening as there is for commonsense motoring. The rank and file of motorists know quite well that they cannot devote their lives and savings to high-powered monsters capable of winning one or other of numerous Grands Prix. They have no wish to turn the highways into racing tracks. They are out for quiet enjoyment. But it seems the unhappy fate of gardening that people who take it up are either sucked into a vortex of exhibiting, or fall a victim to some plausible faddist. In either case they involve themselves in unnecessary expense, and lay upon their lives a burden of exactions and disappointments.

When a committee of experts sit on a new orchid, and deliberate for an hour as to whether its particular shade of colour is slightly different from, or is identical with, an old variety, it is not for the great world of flower gardeners to hang upon the issue with breathless eagerness. The verdict affects one man, and one only —the owner of the reputed novelty. If the committee should decide in his favour, and give him an "award of merit," he will pocket a handsome sum of money. This is well for him as a business man, but how does it affect those who garden for the garden's sake—who run flowers for the sake of a garden, not the garden for the sake of a flower? It does not affect them one iota. They can pursue their work with unruffled calm. The issue has its interest and importance, but not for them. The deliberations of that committee are a not unimportant landmark on the pathway of specialism, but they bear only very slightly on the larger road of the garden.

Let it be admitted that the florist has a case. He will contend that but for his operations flowers would never be improved. He will point to old types, and

put new ones alongside them for comparison. So far from questioning the truth of his contentions we unhesitatingly accept them. We appreciate the good work which he has done, and we hope that he will do more. He has enriched our gardens with hundreds of beautiful varieties, and we applaud him as a real benefactor to the human race. But we ask him to see the reason of our contention that we, beginners in garden making, are not legitimate specialists. We are not natural purchasers of novelties. Later on, perhaps, we may be. At present our business is certainly to learn the character and culture of standard plants. If, in the course of our studies, we develop a passion for some particular flower, and come under the influence of a friend who grows it for exhibition, we may take a step forward. That lies in the lap of the future.

The question whether specialism makes for the ultimate good of gardening might be debated at length. On the one hand there is the undoubted fact that the incessant demand for novelties leads to a constant influx of beautiful varieties. This is not now limited to what are termed "florist's flowers," such as roses, carnations, and dahlias, but extends to a considerable number of herbaceous plants. On the other hand is the fact that the bulk of novelties are not used for gardening at all, but for prize-winning. If we looked at novelties purely as novelties—if we could only regard them as material of the moment—we should certainly be driven to sum up against specialism. But we look ahead. We see that a particular variety has great possibilities. We know that for the time being it can only justify its cost by prize-winning, but we know also that in course of time, when it has become abundant and cheap, it will be capable of doing good service in the garden.

It comes to this : We, as gardeners, let the specialists get the chestnuts out of the fire for us. They have the first nibble, as is only fair. The nut is none the worse, when it comes to us, for the little bite which they have had out of it.

Owners of large places who employ a staff of gardeners to do the work for them often complain of the effects of exhibiting. They consider, perhaps not without reason in some cases, that the particular flower specialised benefits at the expense of other things in the garden. They contend, too, that their freedom of action is impaired. They may look, from a respectful distance, at the flowers, but they must not touch them. It is as though they had a "keep off the grass" notice thrust before their eyes on their own premises, and by their own servants. Every person so situated must deal with the case on its merits, or as it presents itself to him.

Beginners in gardening often start their lessons at exhibitions. They really ought to end there. It is common to see novices taking feverish, indiscriminating notes. An exquisite box of cactus dahlias arrests them. Every flower is a model of substance, form, and brilliant, lustrous colour. In a trice the names are rushed into a notebook, and then the representative of the competing firm, who has been hovering near, sidles up at the right moment, discreetly introduces a catalogue, and books the order. Well, these cactus dahlias may be satisfactory in the garden, but it is by no means unlikely that they will be quite the reverse, having thin, short, weak stems, which fail to lift them clear of the foliage. Thus, the varieties may be valuable for exhibition, but useless in the garden.

The special floral societies did not do much for the

garden maker in their early days; they lived for the exhibitor. But a new spirit is growing up. The societies take broader views than they used to do. Most of them issue information likely to be useful from the garden point of view, and some go so far as to experiment with novelties for the benefit of their members. On the whole, things are tending in the right direction, but garden makers must still proceed cautiously. The time has not yet come when gardens can be built up on shows, and on the proceedings of societies. Specialism, in short, remains specialism, and is from gardening a thing apart.

CHAPTER V

HOW TO LEARN GARDENING

Some of the fine garden plants which exist are among the cheapest, and, moreover, are propagated with such ease and rapidity that a large quantity can be raised in a short time. How can we learn about such plants? Where can we see them?

There are opportunities of acquiring knowledge, with a minimum of expense, and in a very agreeable way. Take, for instance, the nursery gardens. In many trades a great deal of secrecy is observed, and the workrooms are jealously guarded. In the Nottinghamshire lace factories the manufacturers like nothing so little as the casual visitor. He may be there because he is interested in industries, but they see in him the possible agent of a rival firm. In the horticultural trade there is no such spirit of suspicion. Nurserymen like their places visited. It is true that they may have a special stock which they do not care to show, but they do not close the whole of their grounds because of it; they merely give it a reservation, or a greenhouse, to itself, and unostentatiously pass it by when leading visitors round. For the rest, come as often as you like, go where you like. And do not be afraid to badger the florist with questions. He is never a mere money-grubber; plants are too interesting for that. He is very proud of his stock, and he likes to talk

about it. He will always give a pound's worth of information in exchange for a five-shilling order, and consider that he has made an excellent bargain. So he has, for his hearer will be helped and encouraged, and sooner or later will buy more plants.

The spirit prevailing in trade gardening is of the finest sporting quality. Narrowness and suspicion are almost unknown. As an example, the writer was once asked to take charge of an expert committee to assess the merits and value of new varieties of a certain flower. Its members were nearly all representatives of different competing firms. What a Donnybrook Fair that committee-room might have been! What trailings of coats! What cracking of crowns! What conflict of contending interests! Well, there was nothing but good comradeship and brotherly love. Not an eye was blacked, not a head was thumped. The members judged the flowers on their merits, neither more nor less.

There is a good nursery-garden near every large place in Great Britain. As a rule, it lies a mile or two outside the town, where land is cheaper, and smoke less abundant, than within the boundaries. The instructive part of these places is that many of the plants are labelled. It is true that some are grown under number only, but this is not because the nurseryman wants to conceal their identity: it is merely a matter of convenience, and in very few cases will the name be withheld if it is asked for.

Just think of visiting a rose nursery in July! Not a show in the land can compare with such an experience for either pleasure or instruction. Here you do not see specially-selected and carefully-dressed flowers, and nothing more. You see, not only the

flower, but the plant which it belongs to. You can see whether it is a strong grower or a weak one. You can see how it is suited by a particular class of soil. You can see whether it is a free bloomer or the reverse. And, almost best of all, you can find out, by a little observation and a question or two, what sort of pruning suits it best. Such a visit to a rose nursery is in itself a pure delight, but it is also a liberal education. If you are fortunate you may catch the head of the firm when he is going his rounds. Naturally you will, at first, hang back, for fear of intruding, or making undue inroads on his leisure, but he will speedily put you at your ease, and you and he will much enjoy each other's society.

Then there are the public parks and botanic gardens. A great deal of scorn has been heaped on the parks on account of the crudeness of their flower gardening, which is still of the "Elementary Jane" order. The fact of the matter is that the bedding system is not dead, or even in the way of dying. It is alive and flourishing. Just as there are different publics for different classes of book, so there are different publics for gardening. There is a class of book which sells in its thousands. It opens with a murder of the most mysterious and sanguinary character, and a man walking out of the house where it has been committed wearing a dazed look, and floods of the ruddiest gore. Anon it introduces an Adventuress—generally with red hair—who conspires against a heroine (usually answering to the name of Clare or Joyce, rarely to Mary Ann) with soft hazel eyes, and a sweet, grave expression. The man with the dazed look is Clare's (or Joyce's) lover, and is falsely accused of the murder. As, in addition to the dazed look and

the gore, he is wearing the victim's shirt, he is promptly haled off to gaol. In the last chapter but one the crime is brought home to the Adventuress, and in the last, Clare (or Joyce), and the man with the dazed look (who has now got back into his own shirt), kneel side by side at the hymeneal altar.

This is what we may call "bedding-plant literature." It appeals to those crude natures which like plain colours, laid on with a thick brush. No nonsense about Art here, if you please. We do not know what Art means, and we do not particularly want to. We want a good, honest thrill at the end of every chapter, and when we reach the point in our serial where (*to be continued*) is reached, we want to find ourselves confronted with a situation that will put us on the tenterhooks of curiosity.

Those who have to cater for the horticultural tastes of the masses in the large towns probably know their public just as well as the publisher who produces bedding-plant literature, and it is foolish to blame them severely. If a park superintendent tried to get ahead of public taste, he would probably find that his Town Council (largely composed of grocers and the like) wanted to know what he meant by it. Of course we do not blame the superintendent, but equally we are not going to take him as our teacher in flower gardening. Occasionally one of his class gives us a bed suitable for imitation in a private garden, but not often. Even where his designs are moderate and pleasing, they are often made up of mixtures of hardy and tender materials. Indoor plants of great size, altogether beyond the scope of amateurs, are "bedded out." This is the great defect, considered from the educational point of view, of the flower gardening at

A GROUP OF FLOWER BEDS ON THE OUT-SKIRTS OF A LAWN, WITH TREES IN THE BACKGROUND.

Hampton Court, which is, in the main, well done. Hyde Park and Regent's Park are open to the same criticism.

Kew is a better school than the parks, because a greater proportion of hardy material is employed, and plants are given a chance of showing their individuality. The soil is well prepared, manure is used liberally, the plants are given room to develop into worthy examples of their kind, and they are intelligently pruned. The trees and shrubs are particularly well managed. The rose garden is excellent. There is a good rock-garden.

The masses crowd to Kew in Summer, but flower lovers should go at every opportunity during Autumn, Winter, and Spring, because it is then that the greater part of the planting is in progress, and opportunities are afforded of seeing how things are done. Those who suppose that flower gardens are built up on theories will learn how important a part such prosaic things as spades and manure play in making them. Kew makes deep beds of manured soil for its plants, and uses knife and pruning-saw with refreshing vigour.

The rank and file of private gardens are not very valuable as sources of lessons in flower-gardening, because tender plants are largely used in them. The bedding system still rules. The bad old idea of groups of tender plants on the near edge of lawns, instead of wide borders of hardy kinds on the further extremity, still rules. It is a great pity to cut up an expanse of sward just under the windows of a house into a series of geometrical beds, and to fill them with tender things. Distant colour from bold, carefully chosen groups is much more effective. However, herbaceous borders are extending rapidly, and it is more common than it was to find instructive examples of good colour work.

This is particularly the case where the flower-gardening is supervised by an educated person who really takes the trouble to become acquainted with plants. It is unwise for owners of gardens who employ professionals to interfere in the flower-gardening, except when fortified real by knowledge. A great many do, and the result is endless friction, frequent changes of men, undue expense, and a hotch-potch.

The orthodox professional gardener will generally do a place well in his own way, and had better be left to that way, unless his employer is really capable of teaching him a better. The writer recalls numerous cases in which owners of gardens have expressed great dissatisfaction with their man on account of the flower-garden work. The gardener is good at vegetables and fruit, you are told, but his flower-gardening is built up on the rudimentary geranium-and-calceolaria basis. The owner (or more frequently the owner's wife) has been compelled to take this department over. There follows a tale of woe at the result—designs not properly carried out, plants neglected, insubordination, and muddling. In most of these cases the root of the trouble has been incapacity. The owners did not know enough to carry on a system of flower-gardening of their own, but only enough to harass and confuse a possibly well-meaning and industrious man.

It is not suggested that educated people should not supervise their own flower-gardening with a view to introducing better systems. The contrary is the case. They are earnestly advised to do it, both for the benefit to the garden which may very well accrue, and for the amount of personal pleasure and health which it is possible for them to get out of it. The point is that they must disabuse their minds of the idea that artistic

flower-gardening can be picked up as easily as a stitch in Limerick lace. It needs earnest and intelligent study. It would be more easy for a dabbler in poetry to impose a discussion on Browning's poetry on a village "mothers' meeting," than for a person possessed of a mere superficial knowledge of hardy plants to impose a new system on a plain working gardener.

Professional gardeners are not always so inherently obstructive and unprogressive as they appear to be—or, to put it in another way, as they are credited with being. Nowadays many of them see groups of hardy flowers at the principal shows—the Temple, the Royal Horticultural at Westminster, York, Edinburgh, and Shrewsbury—and become genuinely interested in them. There is no doubt that the great majority of modern gardeners would be just as pleased as their employers to do away with bedding out if their thoughts were turned in that direction, and they received encouragement and advice from persons competent to give it.

Owners of large gardens who employ professional assistance had better not undertake the entire responsibility of the flower-gardening hastily. They will be wise to take over a "reservation" as a sort of exercise-ground, and practise there first. They might, for instance, have a fairly large border made, and try experiments on it, doing all their own work except trenching and manuring, buying or raising their own plants, and arranging them in their own ways.

The success or failure of their border could then never become a matter for acrimonious argument; it would rest on one person. Valuable experience would be gained, and a great deal of pleasure would be enjoyed.

After all, the best way of learning gardening is to practise it.

CHAPTER VI

THE CONQUEST OF THE WILD

FROM a horticultural point of view, any expanse of ground that has not been brought under the hand of the gardener is a wild. It may be a green meadow, cool and fresh in its spring garb, gilded with buttercups, dotted with lambs; no matter, it is not a garden, it is a wild! Is a person who makes money, and builds a house in the meadow, going to be satisfied with buttercups under his window, and to tolerate lambs frisking in and out of his hall? No, when the house is finished, something better than buttercups will have to be put round it, and the lambs will have to seek another meadow. Here, then, we are face to face with the task of making a garden.

It would be a matter of interest if we could know when, and in what way, the first garden-maker began. Who was it that had the original idea of getting beyond grass and buttercups? Had he beauty or utility in his mind when he first made an enclosure around his habitation? Was his first thought of his intellect, or of his stomach? We can only conjecture what were the beginnings of gardening. The garden may not have come into being either to please the eye or to appease hunger; it may have grown up in a demand for shade. When the Eastern nomad ceased from wandering, and made himself a home, he would recall

the long, parching days in the sun-scorched desert, and the delicious hours of rest and refreshment around the wells. And he would plant palm and fig trees near his dwelling.

That was the first step. The person who took it probably did not think of anything further until he remembered a pretty cactus which he had seen when he and his associates had raided a certain caravan, and murdered its members. Perhaps he fetched the cactus, and when, in his old age, his mind went fondly back to the days during which he had stolen and slaughtered, the cactus served the double purpose of pleasing his eye and stimulating his tender reminiscences.

However it originated, gardening grew. It had birth far, far back in remote ages. Men of wealth would learn how much more pleasant their habitations became when encircled by trees, fruits, and flowers, than when bare, and gradually they would give their surroundings definite arrangement. In the early days of Eastern civilisation, gardening became a science. Indian, Egyptian, and Persian, each tasted horticultural pleasures. Doubtless schools of gardening existed, and wrangled with the same vigour that they do to-day.

The Romans were great gardeners, and if we may accept the younger Pliny as a representative of the tastes of his compatriots, they were pronounced formalists, having a great love for architectural features and clipped trees. The *topiarius* was almost as familiar a figure as the gladiator. The formal garden, with its terraces, was really a natural outcome of the building of villas on the hillsides; but there is no such legitimate natural reason for the carven trees. The garden of the early Roman was formal, the Italian garden of to-day is formal.

When we speak of Elizabethan gardens we have in mind gardens with straight walks, long, stiff alleys, and dense, trim hedges. They came into being in consequence of the liking which Henry VIII. had for the handiwork of the Italian gardeners. The formal system was further clamped down on a country which was not naturally fitted to it by the influence of the grandiose Le Nôtre, and later by the chain of events which brought William and Mary to the throne of Britain. For the Dutch garden was, and is, formal, topiary forming a great feature of it. The modern English garden is informal, and for the time, at all events, the influence of the Italian school is almost a negligible quantity.

Formal and Natural Gardens

It is not necessary that the person who seeks to turn the wild into a garden should immerse himself very deeply in the arguments of the various schools. He can certainly make himself a beautiful and productive garden without knowing anything whatever about them. After all, what is ornamental gardening but the provision of certain pleasing pictures around a dwelling? If a person encloses a piece of ground with a wall or fence, screens his boundary with shrubs, fronts the shrubs with a spacious border filled with selected plants, carries a lawn from the edge of the border as near to his front door as the provision for a carriage drive and for a border of plants under the walls will permit, he has the nucleus of a pretty garden.

In reality, the configuration of the ground partly dictates the style of a garden. Should the owner put his house on a steep hillside he will have to get his levels for it by cutting out at the back and building

up in front, and then he makes a terrace or a series of terraces. So far there is formality. There is no need to have clipped trees and statuary, but terracing of some kind is a plain necessity. In such cases as these the first point which has to be settled is where the architect is to end and the gardener to begin. The former may contend, with some amount of reason, that the terracing comes within his scope, and if his case is granted he may not be satisfied with providing a level space for vehicles in front of the door, but design a series of terraces, one below the other, connected by flights of steps. And these terraces must have copings, relieved at different points. So vases, and even statuary, creep in. When things have got to this point the garden is naturally (to use an apparently paradoxical phrase) becoming a formal one, because, so far as its most prominent part is concerned, it has become based on stiff lines. But still the clipped trees can be fought against; still the high box edgings, the dense masses of shorn yews and trimmed ilexes; and the lines of bedding plants, can be resisted. A broad border can be formed beneath each terrace wall, and this can be filled with groups of beautiful plants, arranged in careful colour schemes, and with climbers for covering the face of the wall. Arches can be put at the ends of the walks, and covered with roses, clematises, and other plants.

When a person builds on a steep hillside it may be fairly assumed that the garden is not first in his thoughts. He is building for the sake of a view, or for a strong, bracing air. He can make a garden, but he cannot work with the same freedom and economy that he can on level or undulating ground. He is constantly under restraint. He may, too, have difficulties

with water. These facts should be remembered by the garden lover who is in the position of wanting to build a house. When he chooses a piece of level or undulating ground for his site he is not cramped in the same way. The need for terraces disappears, and the architect is restricted to his legitimate sphere—the buildings. The gardener can begin under the very walls.

Walls, Fences, and Hedges

What is the wild? Is it a plain meadow? Is it a heath? Is it woodland? In any case it will have to be enclosed, and so the first consideration may be the boundaries. It is not economical to fly first to brick or stone. Occasionally a large place is seen entirely surrounded by a high brick wall, but the cost is enormous. More commonly, wooden or wire fences, or hedges, form the outer boundary, and only the kitchen garden is enclosed with brickwork. It may be desirable to enclose a small place entirely with brick walls, and the cost, making the allowances for fluctuations due to distance of carting, nature of ground, and varying rates of pay for labourers, may be calculated at about £400 for a single acre, £600 for two acres, and £800 for four acres. This is allowing for a wall with three-feet foundations, six feet high, nine inches (the minimum) thick, and with fourteen-inch pillars at every ten feet. Stone will be cheaper than bricks in some districts, but dearer in most.

As an alternative to brick or stone walls, there are wooden fences. Close oak park fencing is the best, as it is extremely durable, but the cost of enclosing an acre with it would hardly be less than £100. Two acres would cost half as much again, and four acres

double. Open "spar" or "pale" fencing is used a great deal, as it only costs about half as much as a close oak fence. In districts where larch is abundant it may cost even less.

There is still another alternative, and that is a galvanised wire fence, with metal or oak uprights. It is cheaper even than a spar fence, but not much, because it will have to be supplemented by wire netting to keep out sheep. Further, it should have a top strand of barbed wire, as cattle are very fond of scraping their horns in it, and pulling it to pieces.

Hedges are the cheapest form of boundary, and the person who has to study economy naturally turns to them. He must remember, however, that even in favourable circumstances, that is, in good soil, and when properly treated, it is three years before new hedges are strong enough to stop heavy stock. A young hedge ought to be protected from sheep and cattle by hurdles until it is four feet high, and well bushed from the base upward. Four feet, or even six, of soft twigs on a loose base will not repel a bullock. The hedge has to be pruned hard back when first planted, and again a second year in order to get the dense, firm bottom which is so necessary. Quick or whitethorn is the most in request, and plants which have been once shifted in the nursery will cost about seven shillings and sixpence per 100. Assuming that a single row were planted, the plants nine inches apart, the cost in plants would be about four guineas per acre. It is a common and good plan to plant a double row, and this has every advantage except that it increases the cost in plants.

Oval-leaved privet is used a great deal for garden hedges, partly because of its density, and partly because

it is evergreen, but it is not so suitable for boundary hedges, on account of the partiality which sheep have for it. Yew is objectionable because it is poisonous to stock, and a horse cannot be safely turned out into a field where there is a yew hedge. Laurels, myrobalan (myrobella), plum, holly, and hornbeam are other popular hedge plants. They have their merits, but none of them excels quick.

Planning Gardens

Our ground, then, is in the way for being enclosed, and the next thing to consider is laying it out. House and garden must be considered in association. The former should not be close to the road, or it will receive much dust; on the other hand, if put far back the materials for building must be carted farther, thus adding to the cost, and there will be a greater expenditure on the carriage drive. Each person must strike his own balance amid these conflicting considerations. He will doubtless arrange for his house to face south, for the sake of cheerfulness and warmth; and, if there is any choice of elevations, place it on a slight acclivity, with the object of avoiding damp and frost, and of facilitating the outflow of sewage.

Except in the case of very large places, it is desirable that the garden should begin quite at the entrance gates. First may come a belt of trees and shrubs to hide the road, then, skirting the drive, a broad band—not a mere strip—of turf, which may be broken, if desired, with clumps of bamboo or pampas grass. Beyond the band of turf, and following the outline of the drive almost to the house door, there may be a pergola, clad with roses and other climbers, and with a broad border at the front filled with groups of selected hardy flowers.

The widening of the drive at the front of the house will permit of the turning of vehicles, and beyond, opposite the principal windows, may be the lawn, which should be backed with flowers and shrubs, either in a continuous sweep of border outside, or in a series of large beds within the margins.

A road or path may branch off from the main drive to the kitchen and stables, and this may be screened with shrubs. The flower garden may be continued at the back if space and means permit. A small meadow is, however, very pleasant and useful, and costs much less in upkeep than garden ground of the same area. Or an orchard may be planted, with a kitchen garden, and possibly glass houses, beside or beyond it.

In view of the immense diversity in such important matters as site, taste, area, and surroundings, it is difficult to do more than generalise, but the plans given in this work may offer suggestions which, in conjunction with the hints here given, may assist beginners in the art of garden-making. Let us note a few things which should be provided, and a few which should be avoided.

We should provide—(1) Abundance of turf; (2) sufficient trees and shrubs to screen walls, fences, and any ugly objects; (3) broad borders for good hardy flowers; (4) pillars, pergolas, and arches to give an air of grace and informality; (5) a collection of fruit-trees; (6) a kitchen garden.

We should avoid—(1) Cutting down trees except under absolute necessity and after careful deliberation; (2) shifting great bulks of earth if by any means avoidable; (3) setting up gaunt, unscreened fences or trellis work; (4) creating any artificial features; (5) making too much garden for the available labour to cope with; (6) plunging heedlessly into expensive rock-gardens

where the configuration of the ground does not invite them; (7) building ranges of glass houses without counting the cost of skilled labour and heating; (8) specialising in costly novelties before becoming properly acquainted with plants.

Turf

We may place two facts before ourselves at the outset in connection with turf: the first, that in nine cases out of ten a meadow will work down into a good lawn; the second, that decayed turves and underspit make good soil. The former is of great importance when a garden is being made out of pasture land, because it tells us that instead of taking up all the turf, and then starting to make the garden out of bare land, we ought to peg out our paths and borders at the outset, merely taking up turf where it is absolutely necessary to make room for gravel and cultivated crops. This is a cardinal principle covering great considerations of economical working. There may be cases in which pasture is so coarse or foul that it is impossible to make green sward of it by mowing and rolling, but they are few. In the great majority excellent lawns may be made out of meadow grass. Cutting and rolling curb the coarse grasses, and give the finer ones, hitherto domineered over by their big brothers, a chance of growing, and the use of a lad or a village woman to spud out the worst of the weeds with an old knife further helps matters. There are some to whom the sight of a daisy or buttercup is abhorrent, and who must have a close, even sward of the finest grasses, unbroken by a flower of any kind. Such must make their lawns by seeding. They will have to take up the turf, cart it away, dig and manure the soil, cleanse it,

reduce it to a fine tilth, make it firm, sow about one hundredweight of seed per acre in April, protect from birds, scythe the young grass lightly, roll, and finally fall into the routine of mowing, which will need doing weekly until the end of October.

Should it be a case of dealing with arable instead of pasture land, seed-sowing to make lawns presents stronger claims, but even then turfing gives a lawn quicker, and if the imported turves are fairly free from weeds, and are put down on level, firm land in Autumn, Winter (but not during frost), or early Spring, and beaten well, a good lawn is secured in a few weeks. Even when seed is used it is helpful to form the edges with turves.

When turf is lifted to form borders it should be cut into strips about a foot wide and a yard long, rolled up, placed straight into a cart or barrow, and taken away at once to the place where it is to be relaid or stacked, as this saves repeated handlings. If it is to form potting soil it may be unrolled, and spread flat, grass side downwards, in layers. At the end of a year it will be ready for use.

Making Borders, and Ground-work Generally

Whether the "wild" be pasture or arable land we may apply certain principles to those parts of it which we intend to plant with trees, shrubs, fruit, vegetables, or flowering plants. In the case of the pasture, we may remove the turf first, as we have already seen, and store it for potting soil if a great many plants are to be grown in pots. But if we consider the borders and beds first we shall not take the turf away; we shall chop it up and turn it in.

It is often said that professional gardeners are

enslaved by bedding plants, and have no liking for hardy flowers. A typical gardener will grow anything, and glory in it, so long as he has a hand in everything that goes on. Reader, do you employ a gardener? If so, give him the opportunity of interesting himself in your herbaceous borders from the first, and see what happens. If you make your own borders without consulting with him he may go off to his geraniums in dudgeon.

The writer does not believe that professional gardeners as a class dislike hardy plants. A few of the old school may, but the bulk of modern men do not. A gardener loves to see things of which he has the handling grow and thrive. He may have a special partiality for one particular plant, such as the chrysanthemum, and that partiality may have to be curbed if it should threaten to go too far; but, broadly speaking, he will like anything which responds to his treatment. The trouble over gardeners and herbaceous borders is that people think that the men do not like them; and are convinced, without proof, that the gardener has not sufficient taste and skill for this class of work.

Almost any gardener can be led to take an interest in herbaceous plants, and it is well worth while to guide him in that direction, because he will probably have cultural knowledge, especially about managing soils, which will be very helpful. It should not be a case of master *versus* gardener, but of master *and* gardener. A working union should be brought about by tact and good feeling. In the unlikely event of the gardener being unresponsive, and even grumpy, get rid of him, and try another. There are different types of gardener, just as there are different types of employer. A harmonious association is so valuable that it is worth making an effort for.

It is in the spade work that the gardener will be most helpful at the outset. Let him interest himself in this, and he will be quite cheerful. When it comes to the actual planting he may be allowed to put the things in, under tactful guidance, and the fact that the actual colour-grouping is not his, but yours, may never come home to him. The writer has known a gardener take ineffable delight and pride in a beautiful colour-border which, in the artistic sense, was not his at all. That fact never occurred to him, and nobody ever troubled to tell him. He read a learned "paper" about it at his gardeners' society meeting, and got more than a local reputation as a hardy plantsman and artistic flower-gardener. This worthy fellow has a mistress who studies human nature as well as flowers. Their relationship is thoroughly harmonious, and their joint efforts are splendidly successful.

Gardener or no gardener, the beds, borders, and shrubberies should have the best of spade culture and manure before a single plant is put in them. You cannot build up a beautiful garden by scratching about with a sixpenny rake, and peppering from a tin of Springup's Floral Rejuvenator. As well try to nourish a boys' school on wafers and "squiff." Break up the soil a full eighteen inches deep, and work in, nearly a foot below the surface, the richest, most unctuous yard manure available, not less than two heaped barrow-loads to every square rod—double that quantity if the soil is very light.

It is a good plan to tackle the wild in Autumn, because there will be plenty of time to do the work well, and have all ready to plant by the Spring. Most shrubs and trees, including fruit and roses, are best planted in April. The lighter the soil the earlier in

the Autumn it should be worked. Clay soil must be handled with judgment. It often goes steely under the influence of drying winds, and will not crumble until rain has softened it. Wait for the right moment, and seize it promptly.

Stiff soil may need drainage. Should water stand within two feet of the surface in winter (and this can easily be tested by making holes two feet deep, and leaving them covered for a week or two in wet weather), the land ought to be drained. The gardener, or a person with local knowledge, will be able to advise as to this. The pipes should be laid in trenches eighteen feet apart, and two and a half deep, and should lead to a main drain, which will carry the water to lower ground, where a pool for water lilies may be formed. The cost of draining stiff soil may be about £10 per acre. Deep working of soil will cost from two to three shillings a square rod, the amount varying according as the soil is light or heavy, and according to the prevailing wage rates.

Roads and Paths

The making of roads and paths is one of the most serious items in the reclamation of the wild, and must be tackled in a thoroughly practical spirit. It is only in very small places that paths suffice; in the great majority a drive is required. The narrowest width allowed for this should be nine feet, and the smallest area for turning vehicles eighteen. In the case of a long drive, where two vehicles may have to pass each other, the width should be at least sixteen feet. By multiplying the length by the width we can get the total area of the drive in square yards. To arrive at

an approximate idea of the cost, which it is very desirable to have, we must decide on the material. Five inches of broken "rock" (rag or other stone), three inches of clinkers, two inches of flint, and two inches of gravel will carry all ordinary traffic if thoroughly compressed by a heavy roller. The price of the materials will vary with the district, and more particularly with the distance of cartage. The total cost, inclusive of removing the earth to make the bed of the drive, material, and rolling, will hardly be less than four shillings per square yard. The soil removed may be shifted at once to a position near which it is intended to make a mound or rockery, and it will then be out of the way for the time being, and ready for use when wanted. There is often a good deal of careless earth-dumping, with the result that it has to be shifted twice. If there is chalk available, removed from the footings of the new house, it may be used instead of rock, and the cost will be reduced correspondingly.

Although drives and paths surfaced with gravel are the best, generally speaking, they are not suitable for gardens with steep slopes, owing to the fact that the gravel gets washed out during heavy rain. In such places the main drive had better be of metal, and the paths of cinders, shingle, tar, concrete, or asphalt.

It is not necessary to have so great a depth of material for paths as for roads. Eight inches for main and six inches for by-paths will suffice.

Whether roads or paths are being made the outer edges must be on the same level, and to insure accuracy it is well to drive in a line of short stakes along each edge the whole length, and then place a builder's

"straight-edge" across each pair from one side to the other, tapping the pegs down until they are level. The material can then be filled in, and if evenly rolled the road is sure to be on the same level each side. The path may rise a little from the sides to the centre, in order to insure water flowing off. Higher inner pegs may be driven in to get the level for the crown of the path. In order to provide drainage it is well to lay a length of two-inch drain pipes under the ballast along each edge, and set perpendicular pipes, reaching to the surface and there covered with gratings, upon them at every few yards, in order to carry the water to them. The path drain may have an outlet into a pool the same as the land drains.

Gravel paths tend to become weedy, but can be kept clean if they are watered after a shower in spring with one of the weed killers which florists, seedsmen, and chemists sell. Rolling and light sweepings will help to keep the surface even and clean.

Asphalt paths are not weedy, but they do not look so well as gravel, and cost considerably more. Good asphalt can be made by mixing two parts of sand and one of cinders, both dry, hollowing out the centre of the heap, and pouring in enough tar to cause the whole mass to work up into a mortar. This should be spread on the ballast to a depth of three inches, raked level, beaten, sprinkled with coarse sand, and then rolled.

Grass paths should be used as much as possible in the flower-garden. The disadvantage of their being damp during long spells of wet weather is balanced by the superior effects of flowers on a soil of turf.

Edgings

The need for edgings arises from the fact that if the soil was cultivated right to the edge of a walk, particles would be incessantly crumbling over, and making it dirty. To prevent this there has to be something between the path and the soil, such as turf, tiles, or box. A band of turf is excellent, because it shows off both path and border. It should be really a band, and a broad one at that; a mere strip is troublesome to mow and roll. The width should not be less than eighteen inches, and double that will be still better. The edges, or "verge," can be kept even and smooth by the use of a pair of long shears. Unless this trimming is practised regularly the grass soon grows on to the walk. If the upkeep of, and space occupied by, grass edgings are objected to, and a "dead" edging is preferred, it may be found in "rope-twist" tiles. Care must be taken to get a hard, level base for them, and to set them firmly in a straight line, otherwise they will always be untidy. It is not a bad plan to run in a little cement to form a bed for them, as it costs very little, and insures evenness. The metallic appearance of the tiles can be reduced by setting a line of thrift, London pride, pinks, or violas behind them.

Rockwork

This is an age of rockeries, and a modern flower-garden without a rockery would seem incomplete. Rock-gardening is full of interest and charm, but it is not flower-gardening in the fullest sense, much less landscape-gardening. A rockery should not be con-

sidered as composing a garden, but merely as making an attractive feature of it, like a lily pool, or a rosery. A person may have a very respectable knowledge of Alpine plants, and yet be totally ignorant of flower-gardening.

Inexactitude rides rampant in gardening, and there is an appalling confusion of thought in connection with it. Flower-gardening, as we shall see when we come to study it more intimately in later chapters, is the science of producing beautiful effects—of refining and adorning nature. When we take breadths of the earth's surface, make lawns, form beds, fill borders, plant shrubberies, and establish pergolas and water-gardens, we are practising flower-gardening. Rock-gardening is entirely subordinate and sectional. In a sense it is specialistic, because a rockery does not generally come within the decorative scheme of a garden, and may even militate against it.

It is desirable to have a clear sense of the situation before plunging extensively into rockwork. There cannot be a doubt that many flower-lovers, who would find deep enjoyment, and gratify their artistic instincts, in making beautiful combinations of flowers, take up rock-gardening as though it were flower-gardening proper, and are disappointed. In proportion to its area the rockery is much the most expensive item in the garden, and when it is complete the garden proper still remains to be made. The fact is, there is an unfortunate transposition, due to mental confusion. Instead of dealing first with the really great consideration—the making of the garden, funds are exhausted on something which, interesting though it may be, remains only an item. It is as though a woman made an expensive cosy corner in a drawing-

room before she had considered a scheme for papering the walls, panelling, carpeting, and furnishing.

A complete rockery has three main components—soil, stones, and plants. It is because one at least of these comes into view in the first operations of reclaiming the wild that a preliminary reference is made to rock-gardens in this chapter, instead of being left entirely to the flower-garden section. Soil is always being set free when a house is being built and roads are being formed. It comes from the house-footings, and likewise from the beds of the walks. We may fairly set it down as the most important item of our rock trinity, because without it neither rocks nor plants would be of much value. The points to remember are: (1) that no soil should be shifted until a place has been found for it to go to; (2) that no soil should be carted into the place from outside sources until it has been thoroughly established that the existing material is unsuitable. The underspit from turf is often very good soil for rock plants, and, if in any way suitable, it should be shifted at once from its bed to the place where the rockery is to be, and there laid in the most convenient form for use. A large body of soil is the brain of a rock-garden.

There is another reason why rockwork may be considered thus early, and it is that a necessity may arise for stones to be brought in for facing a bank, or serve some other purpose, before the garden is begun. If a contract could be made, not only for these stones, but also for what are required to form the rockery, at the same time, it is likely that more favourable terms could be got. This consideration is important, because rocks are often a very costly item in a garden. The best Derbyshire or Yorkshire stone

will perhaps cost two guineas a ton, the exact sum depending on the distance that it has to be conveyed, and twenty tons will not go far in a large rockery. Rag is a softer stone, and by no means so good, either in appearance or durability; but if quarried locally circumstances may compel its purchase, as the price, delivered, may come down to a much lower figure.

Whatever kind may be used, common sense dictates that if early attention to the matter of purchase secures better terms, and if soil and rock can be brought together with the least possible waste of time and effort by the exercise of a little forethought, those requirements should be forthcoming. Certainly the rockery question is more than half solved when a capacious mound of good soil, and sufficient stones to form a liberal supply of deep "pockets" on all aspects, are provided. If there is any doubt of the fertility of the soil, a liberal dressing of manure should be worked in while the mound is being formed, and there will then be plenty of time for it to decay before planting time comes.

Tools

The provision of an adequate supply of good tools is desirable for two important reasons: (1) it facilitates the performance of the various operations; (2) it deprives incompetent men of a very handy excuse, and leads to their defects being exposed.

A certain number of tools and appliances are essential to gardening, and it is important that they be of a particular character, fitted for the class of work which they have to do. There are not wanting

people whose total outfit consists of a six-toothed rake, a trowel, and an old table-knife. These can hardly be described as adequate. They certainly will not make large herbaceous borders, build rockeries, and grow fruit trees.

It may be well to glance at some of the most useful tools, and decide what are indispensable.

At least one good spade is needed, and if more than one worker is employed there should be a spade for each. It will cost from five shillings and sixpence to ten shillings. A shovel should be added if much earth has to be shifted, as it is a much better tool for taking up loose soil than a spade.

A strong steel fork, with five prongs eleven inches long, is valuable. It is much more suitable for digging some classes of soil than a spade, and is useful for other purposes. It will cost about the same as the spade. A short hand-fork with flat prongs is useful for shifting young plants, and is preferred by many to a trowel.

Pruning tools may consist of two knives, a large pruner with curved blade and handle, each about three and a half inches long, and a small, flat-handled budder; a pair of sécateurs costing about six shillings; and a bill-hook for hedge trimming. The knives will cost about five shillings each. A stout bill-hook will be useful for sharpening stakes.

A line and reel will be useful in the kitchen garden, as by setting the line straight rows of plants can be put in without fear of their wandering off into curves. But it can be dispensed with, if it is necessary to reduce the cost of equipment to the utmost possible extent, and a long piece of cord on two sharpened stumps substituted.

Rakes and hoes are a small item, as they are very cheap. An eight- and a ten-teeth rake, and a Dutch

and a swan-neck draw hoe, all mounted on ash handles, will be serviceable.

A wheelbarrow will be wanted, and a medium-sized one, whether of wood or metal, may be expected to cost about thirty shillings. A swinging water-barrow mounted on broad wheels is almost as useful as a wheelbarrow, saving a great deal of time in conveying water. But it is less necessary if a hose and reel are provided.

Turf tools are the most costly. In the first place there is the mower to consider. The best size for a single person to use is a ten-inch, and one of the best finish will cost five pounds or a little more. But it is possible to get one of a plainer type for about half that sum. One must consider mowers as one considers cycles. If one would have a bicycle of high grade, with change-speed gearing, chain case, and other refinements, one must be prepared to pay more for it than for a plain machine. A scythe is not indispensable, but it is desirable, especially for use on young seed lawns. An edging iron is good for cutting turf edges, and a pair of edging shears for trimming verges. Where turf is being shifted a lifter and a beater are needed, the former to pass under the turf and separate it from the soil; the latter (which consists of a heavy, flat piece of wood mounted on a strong diagonal handle) to compress the turf when relaid. A roller will be very helpful in the management of the turf; indeed, it can hardly be dispensed with, and it will serve also for the paths. One twenty-two inches wide is a good size for one man.

Of other things there are hedge shears, dibbers for setting out young plants, water cans, a syringe, plant stakes, tying material, labels, and fish netting for protecting seedlings.

This is a somewhat formidable list, but it is not

easy to see how it can be greatly reduced, except for very small gardens. We certainly cannot get the upper-hand of the wild, and garden with ease and satisfaction, unless we are properly equipped. There should be a dry store for tools, with grease or oily waste at hand for cleaning them when they are put away. They will then last a long time, and always be in the best condition for use when wanted.

PART II

THE FLOWER GARDEN

CHAPTER I

COLOUR FOR ALL SEASONS

SIMPLICITY, which has always been a dominant factor in Art, should be the soul of the garden.

The revolt against formalism, which did so much to rescue British flower-gardening from the feverish clutch of the bedding system, has proceeded to inordinate lengths. Flower lovers are beginning to specialise in hardy plants, just as old-time gardeners did in geraniums. We are taught that we must plant in immense quantities. We are trained to associate informal or "natural" gardening with expensive rockeries. All this is regrettable, because it makes flower-gardening more complex and costly.

The only system of flower-gardening that can do national good (and no system that fails to do this has any permanent value) is one that shall cover the country with beautiful gardens that are well within the scope of those who own them — gardens which afford moral and mental training and intellectual pleasure, while causing no embarrassment on the score of cost and maintenance.

The leading advocates of "natural" flower-gardening have exercised a considerable influence for good, but they have been carried beyond their original objective by the unbridled enthusiasm of their supporters. It is the fate of many a worthy cause, that

the glow of success leads to an exhilaration which impairs the judgment and obscures the vision of its leaders. Their outlook becomes narrowed. Partisanship develops. Simplicity is lost.

It would be a lamentable anti-climax if the informal system, passing out of the control of the hands that set it in motion, developed such costliness and complexity that the bulk of flower-gardeners went back to bedding out in despair. The danger of this may not be apparent, but it exists, and it will grow unless an effort be made to check it.

The really great writer is distinguished by simplicity of language. He does not secure his effects by literary thaumaturgy. He cultivates a clear, yet dignified, style. His sentences are crisp and concise. They blend with the smoothness of accurate mechanism. Gardening has much in common with literature, and should be guided by the same principles. Our national literature has been built up on the simple lines adopted by the great writers who compiled the Bible. It is the world's misfortune that the earth has been so much in demand for battlefields that there has been little to spare for gardens, and so we lack an inheritance of garden wisdom as priceless as that of literature. If the great spirits of the past had studied the art of making gardens as thoroughly as they did that of making books, we should not be in the welter of extravagances and banalities that we are to-day.

Flower-gardening must take simplicity for its guiding principle, or, whether it be "formal" or "informal," it will fail. There should never be any question of a conflict of schools. No school of astronomy can alter the rules of the universe, although it may legitimately disagree over the canals of Mars. To suppose that it

is impossible to secure effects in gardening without recourse to violence, is equivalent to saying that language is incapable of expressing a meaning without resort to hyperbole or profanity. A beautiful garden should have all the elements which make classics—clearness of thought, honesty of purpose, and grace of diction.

The youthful writer revels in redundancy. With Roget's *Thesaurus* beside him he embellishes his style with an extensive vocabulary. One adjective is never employed where two can be dragged in. Flower-gardening suffers from the same elaboration. It is difficult for those who are saturated with the affectations and extravagances of modern garden literature, to realise how much of pure beauty is possible in a garden that is built up of a few simple features—an outer skirting of shrub and herbaceous border, a rose garden, a lawn, a lily pool. There is no need for complexity, still less for trickery. If the mind demands the illusion of space where space does not really exist, the art of the landscape gardener can create it with twists, and turns, and curves, and undulations of surface. But why not truth? With care in the selection and disposition of plants a scene can be created, even in the most confined area, so full of interest and beauty that there is no wish for, or thought of, illusory visions. Whatever is false or meretricious becomes insufferable.

In gardening, space and quantity alone will no more convey pleasure than tautology in literature. A cultured mind finds a gratification in a beautiful piece of poetry that never fails. However brief the passage may be it gives satisfaction. A first reading does not exhaust its charms, it is read again and again. And the smallest corner of flower-garden, provided it be well done, will please in the same way. If the plants are as well chosen

as the words of the good writer, if they are grouped as carefully as his sentences, the result will be harmonious and pleasing.

There is an undoubted art in laying out areas of ground with trees, shrubs, and plants in such a way as to give imposing pictures, but that is not the only form of gardening. There is equal art in decorating a half- or quarter-acre plot. A miniature may be as artistic as a full canvas. The implication that anything in the way of growing and arranging plants is unworthy of the title of gardening unless it is done on a huge scale is presumptuous. Every educated person should cultivate flowers, just as every cottager cultivates vegetables. It ought never to be said that a place is too small for flower-gardening.

The first study in flower-gardening should be Colour —not System, not Design, but Colour. System and Design separate gardeners, Colour unites them. The study of Colour is equally the privilege of the owners of small and of large gardens. In it they meet on common ground. The same effects can be secured in gardens of varied area. By grouping plants, either on a large or small scale, in such a way that their hues blend, we get beautiful effects, whether the plants be represented by half-dozens or by hundreds.

Flower-grouping for colour is almost a new study in gardens, and it is fraught with great possibilities. It may be allied with specialism, if the flower lover have sufficient strength of character to rise above the temptation of becoming a slave to a chosen plant. Spring flower-grouping, for instance, can be conducted with tulips, especially if the tall, late flowering varieties be chosen; the early dwarf Dutch sorts have to be used with great care, or they become merely a smear.

The ordinary "mixed border" of herbaceous flowers is often nothing but a higgledy-piggledy tumble of plants. The sole idea seems to be to cram in as many kinds as possible. If the subject of arrangement is discussed, it is generally in respect to height. "Arrange dwarf plants at the front, medium in the centre, and tall at the back," says the first adviser. "Bring some of your taller plants towards the centre, so as to avoid uniform, stiff tiers," says the second. In passing, the writer may mention that as between these two views he decides for the second, but he thinks all the time that the point is entirely subordinate to that of Colour. It is possible to mar a border by mistakes in relation to height, but it is impossible to spoil it entirely if the colour scheme is correct. On the other hand, no care in arranging a border for height can save it if the colour scheme is wrong.

When Colour assumes its proper status in relation to what are called "mixed borders," it is soon perceived that the "mixed" principle, as generally understood, must disappear. We shall no longer crowd borders with all kinds of plants, but we shall furnish them with a limited number of varieties, the colours and flowering periods of which are carefully considered in relation to each other. This is the flower-gardening of the future. It is guided by definite principles. It may be costly, if the newest varieties are chosen, and if fresh plants have to be purchased every year in order to bring the collection "up to date." On the other hand, it will be inexpensive if standard sorts of good quality are chosen, and home propagation is practised. There will be bloom at all periods, and at the same time the quality of the flowers will be of a special character, and of particular interest. Before proceeding to deal with Colour in its

seasons, consideration may be given to the question of backgrounds. It is possible to fill large borders and beds both effectively and economically by associating the chosen flowers with selected conifers, such as the swarthy and glaucous pines, tinted retinosporas or cypresses, and dusky yews. It is the modern custom, practised by those who write for wealthy garden lovers, to deride indiscriminately the inexpensive shrubs which are grown in thousands by nurserymen. This folly takes its rise from the narrow view that no plant can be worth growing except for its individual interest. Plants have other uses. We should not choose the Austrian pine for a special isolated position on a lawn, but it has its value none the less. This, likewise the Weymouth pine, Lawson's cypress, *retinospora obtusa*, the arbor-vitæ, *thuya dolabrata*, the yew, and varieties of the Chinese juniper, make good foils. So, too, do certain non-conifers, such as *berberis darwinii* (also attractive from its flowers), the silver birch, Japanese maples, Bailey's dogwood (*cornus baileyi*), the golden-stemmed ash (*fraxinus excelsior aurea*), the bamboos, box, cotoneasters, thorns, euonymuses, tree ivies, laurels, hollies, laurustinus, and veronicas. These plants have beauty of foliage, bark, stem, or leaf, and if the tree-like growers are grown in poor soil they will develop but slowly, and be long before attaining to undue proportions. By choosing certain of these shrubs for use as backgrounds, large borders can be filled at much less cost than would be otherwise entailed, and so far from the general effect being marred, it is improved. Some of the dwarf, slow-growing things may be brought fairly forward to form bays, in which selected flowers are planted. A semi-circle of the common yew, enclosing an area planted with groups of tulips, phloxes,

Delphinium Beauty of Langport, white, introduced by Messrs. Kelway & Sons, and grown by Mr. W. C. Blakeway.

and Michaelmas daisies for Spring, Summer, and Autumn bloom is an illustration of the present point. The stations for the flowers can be specially treated, by deep digging and liberal manuring, to give that vigorous growth and abundant blooming which, in their case, is so desirable.

Larch and oak pillars may also be introduced into mixed borders, and they will serve the double purpose of forming backgrounds, and of supporting roses, clematises, and other climbers, which will give grace and informality. One plan is to form a group of three unpeeled larch-poles, and plant within a vigorous, spreading rose, such as the Pink Rambler or Félicité Perpétue, and group tall blue perennial larkspurs (*delphiniums*) outside, in association with Madonna lilies (*lilium candidum*). A glorious colour effect is thus produced, in which the grey-browns of the larch-bark play an important part.

Tree stumps or heavy forks, planted with a selected sprayey rose like Alister Stella Gray, or with ivy, may also be utilised as backgrounds. An ivy-covered stump forms an admirable foil for clumps of rich, lustrous pæonies, which are assuredly among the noblest of border-plants.

Viewed from the point of view here suggested, colour-study becomes of commanding interest. Herbaceous borders are homogeneous, and yet varied. Collections of plants are not thrown together indiscriminately, but the various components of the border are chosen, and placed in relation to each other, with the same care as the different parts of a picture. A painter who merely filled a canvas with figures that bore no relationship to each other would stand but a poor chance of gaining a desirable reputation as an

artist. With him Composition and Colour go hand in hand.

The flower lover, equally with the artist, should choose his materials with judgment, and strive to harmonise them in such a way as to form beautiful pictures.

Spring Colour

Spring is rich in colour, but not in plants of bold growth; and while we have abundant material in snowdrops, winter aconites, anemones, crocuses, grape hyacinths, primroses, polyanthuses, irises, and daffodils for grass, bank, dell, and woodland, we have none too much to give us the impressive effect that we seek in the border. The purely early flowers are nearly all low growers, and it is not until late April or May that we get taller kinds in anything like quantity. It is not suggested that we should not use low bulbs; we will certainly take them gratefully, and if we have a few brightly-coloured shrubs among the more sombre occupants of the border, such as the golden bell (*forsythia suspensa*), the star magnolia (*magnolia stellata*), *escallonia macrantha*, and deutzias, we shall not be without variety.

Early Bulbs.—Snowdrops and winter aconites will begin the display in February, and in sheltered spots the lovely iris reticulata and Krelage's variety of it will give bloom in February or March. Crocuses will be on their heels, and early daffodils like Henry Irving will be in flower before March is out, unless the weather be very hard. In April star narcissi, hyacinths, dwarf Dutch tulips, primroses, arabises, and aubrietias will be in full bloom. The primroses, arabises, and aubrietias will grow as they flower, the clumps expanding steadily throughout May.

LEOPARD'S BANE AND TULIPS.—A valuable flower from mid-April onward is the leopard's bane (*doronicum*). The species called *plantagineum excelsum* (Harpur Crewe) has long flower stems, and is superior to the old kind on that account. It is useful, but the great flower of May is the late tulip. This magnificent plant is divided into two sections, one of which is called the Darwin, and the other is variously described as the "late," "cottage," and "May-flowering" section. Inasmuch as the Darwins are late or May-bloomers the terms are not distinctive enough for garden purposes. The Darwins proper are self or one-coloured flowers, akin to what the old florists called "breeders." Some of the "cottage" section are also selfs. It is too much to expect that the majority of flower lovers will ever have a clear idea of the difference between the two classes, any more than they have between violas and pansies, or primroses and polyanthuses; and for our present purpose it is not necessary that they should. The point is that they should be familiar with a few of the best late tulips, whether these be cottage or Darwin varieties, and know how to use them to the best advantage.

In the first place, it is understood that we do not plant single bulbs of a large number of varieties, the names of which have been taken at shows. We must plant separate clumps, varying from six to two dozen in number, according to space and means, of a few chosen varieties, which grow strongly, and have large flowers with rich, clear colours. Herschel, claret coloured; Kern, amethyst; La Candeur, white; Hecla, reddish maroon; Minister Tak van Poortvliet, dark red; Farncombe Sanders, bright red; Pride of Haarlem, rose (not to be confused with Bride of Haarlem, which

is an early dwarf Dutch); Sultan, maroon; Sunset, red and yellow; Bouton d'Or, orange yellow; Gesneriana spathulata, scarlet; La Merveille, rose to orange, very sweet; Mrs. Moon, deep yellow; and Picotee or Maiden's Blush, white with pink edge, are such varieties. They are noble flowers, and all are cheap enough to plant in fair quantity. For the greater part of May, and during a portion of June, they will give glorious breaks of colour, adding an entirely new feature to gardens. Owing to the thick substance of the petals they do not reflex under sunshine in the same way that the early Dutch sorts do.

It is generally thought that light, sandy soil is best for bulbs, including tulips, but these splendid May bloomers never do better than in deep, cool clay. In such land many of the varieties will throw up flower stems upwards of two feet long, crowned with flowers larger than turkey's eggs. They will not need any manure in heavy soil, but in light land it will be wise to give a dressing, preferably of cow manure, which should be dug right in below the level that the bulbs will occupy. A coating of superphosphate, at the rate of a handful to the square yard, may be worked into the surface soil. If desired the bulbs can be lifted after the flowering is over, the bloom stems being removed, but the leaves preserved, and planted in an out-of-the-way nursery bed, thus making room in the border for something else, such as salpiglossis, ostrich plume asters, sweet peas, or (shudder not, plant lovers!) even zonal geraniums.

CROWN IMPERIALS.—Another tall bulb of much value is the crown imperial, a species of fritillary. The yellow and orange varieties are both effective plants, and the flowers are borne in a graceful, pen-

dulous truss on a long, stout stem. One buys bulbs of these in Autumn, as of tulips and hyacinths, and they are cheap. A solitary plant, if vigorous, makes a very striking object in a border, and a group will yield to few other subjects in beauty and distinctiveness.

COLUMBINES.—At that late period of the Spring when our thoughts are turning to roses and other Summer flowers the columbine (*aquilegia*) begins to bloom. It is difficult to leave it out of the border, and if its flower is hardly bold and decided enough to justify its use in colour groups, it is nevertheless beautiful, and the foilage has value.

PYRETHRUMS.—The pyrethrum needs no qualification. The very early growth of its pretty foliage makes it useful as a ground coverer; the flowers are large, brilliant, and well thrown up. No small point in favour of the pyrethrum is that it can be shifted at almost any time, even when in bloom. The more the flowers are cut the better the plant blooms, and the flowers are very useful for vases, in spite of the fact that they are a little stiff. There are always both Spring and Summer crops if the flowers are cut freely; and if a little judgment is exercised the border effect need never be lost, however persistent the cutting may be. The varieties Agnes Mary Kelway, rose; Decoy, scarlet; Feversham, white; Melton, crimson; Othello, violet; and Princess Beatrice, pink; the first three single, the rest double, are examples of inexpensive stock sorts which are as good for border work as any of the novelties.

THE LYRE FLOWER.—A plant that is practically represented by one species only, and has no long tale of special varieties to its name, is the Lyre Flower or Bleeding Heart, which botanists used to call *dielytra*,

and now call *dicentra, spectabilis*. Its long, arching stems, hung with pink eardrops, have a pretty effect. Roots can be bought very cheaply in Autumn, in the same way as Dutch bulbs, and a group has a good effect.

Summer Colour

Pæonies.—Spring and Summer overlap with some flowers, and among them is the pæony, not second even to the tulip in the vigour of its growth and the splendour of its colouring, and even superior in the warm tints of the young growth in Spring. Given deep, rich soil, and a policy of non-interference, it will form magnificent clumps, single plants spreading to three or four feet across, and bearing a dozen or more huge flowers, highly coloured, and powerfully scented. As with the tulips (and, indeed, all other flowers), the best policy is to select a few stock varieties of established merit and moderate cost. A few answering to these requirements are—François Ortigat, purple; Rose d'Amour, flesh; the Sultan, maroon; Captain Lambton, white; James Kelway, carmine rose; and Lady Sarah Wilson, blush. The first three belong to the herbaceous section, and the other three to the tree class.

Perennial Larkspurs (*Delphiniums*).—The delphinium also links Spring with Summer. A noble and stately plant, its tall spikes of mainly blue flowers have a splendid effect when rising near some dark column, such as the upright of an arch, a pillar, or the side of a gateway. The flowers blend with white Madonna lilies, which are nearly as cheap as crocuses, and may be planted in September in a patch of rather poor soil near the richer bed of the delphiniums. A

Delphinium True Blue, introduced by Messrs. Kelway & Sons, and grown by Mr. W. C. Blakeway.

climbing rose, such as the glorious Carmine Pillar, may be in bloom at the same time as the delphiniums, and a pillar of it in the rear will complete a picture of rare and gracious loveliness. Belladonna, Bleu Céleste, Dorothy Kelway, Persimmon, Salamander, and the Queen compose a splendid sextet of perennial larkspurs.

Roses.—Roses are not generally introduced into the mixed border, yet in addition to the pillars one or two special varieties should be chosen for colour groups. First and foremost for this purpose stands the beautiful, scented, ever-flowering crimson Grüss an Teplitz, a rose with a future as secure for garden decoration as that of Crimson Rambler for arches. With heavily manured soil, and light pruning, it will bear clusters of flowers the whole of the summer, growing ceaselessly, and flowering as it grows. A variety like this is worth a thousand of the dressed fops of the exhibition tent.

Phloxes.—The perennial phloxes with their noble spikes, and soft, yet brilliant colours, are indispensable for colour groups, and must be classed among the elect for this purpose. Varieties of different sections bloom from June to October. They do not like a stiff, damp soil, and such land ought to be prepared for them very thoroughly, being well broken up to a depth of eighteen inches, and lightened with liberal applications of coarse sand or road grit. It is not wise to use much manure, but bone flour is safe and good. Manure may be used with advantage in light, loamy soil. A few of the finer sorts are—James Hunter, pink; L'Aiglon, carmine; Coquelicot, orange scarlet, deeper centre; L'Ésperance, mauve, white eye; Le Mahdi, violet; Le Siécle, salmon rose; Papillon, blue; Ros-

signol, mauve, paler eye; and Mrs. E. H. Jenkins, white. The phloxes may be grouped with plantain lilies (*funkias*), which have broad, handsome leafage; and with the tall graceful bulb variously called *galtonia* and *hyacinthus candicans*.

HOLLYHOCKS.—Where space permits, hollyhocks can be set at the back. Queen of Whites; Queen of Yellows; Mrs. Edwards, salmon; and Joshua Clark, carmine; are good varieties of this stately old cottage garden flower. The plant grows luxuriantly in deep, rich soil, but it is not benefited by over manuring, as such treatment conduces to disease.

IRISES.—The specialist in irises will have his own particular plans for this superb flower, so varied in its range of flowering, height, colour, and cultural requirements, but the "orchid of the flower garden" must be pressed into service for border groups. The "Flag" section, which has rhizome roots, not bulbs, will give the best material for this purpose. A splendid example of it is Pallida, a noble plant throwing stems a yard high, and with flowers of a shimmering lilac blue. Madame Chereau, blue and white, which is a variety of the species aphylla, is another grand "Flag." These are early summer bloomers, and are often at their best in June—a point which must be borne in mind if flowers are to be chosen for grouping with them. The day lilies (*hemerocallis*) are suitable, for they, too, are early bloomers.

GERANIUMS.—For front positions in the border the hardy geraniums or crane's-bills are well worth attention. They are economical flowers, for they cost little to stock, and quickly spread into broad masses. They are fond of a cool, clayey soil, and need no manure in such land. The species *sanguineum*, crimson; and

its rose variety, *lancastriense*, are both very pretty; so, too, is the purple *armenum*. Their one fault is that they are a little dumpy, and on this account may be elevated on stone mounds, or relieved by association with the beautiful St. Bernard's and St. Bruno's lilies (*anthericums liliago* and *liliastrum*), which have tall, graceful spikes of white flowers.

CANTERBURY BELLS.—Those dear old favourites, the Canterbury bells (*campanula medium*), are among the cheapest and best of border flowers. Blooming for the first time in early summer, they will linger long over their first flowering, and yet give a generous second bloom if the fading blossoms are picked off. Remembering that hundreds of plants can be grown from a sixpenny packet of seed sown about a year before the flowering, it will be readily conceded how precious the Canterbury bells are.

SWEET-WILLIAMS.—There is a special salmon pink variety of sweet-william that flower lovers should make a point of getting, for it comes from seed as readily and cheaply as Canterbury bells, and makes beautiful border clumps. It forms a charming companion for the tall *lupinus polyphyllus*, which is a cheap and noble plant, both in its blue and white varieties.

POPPIES will not escape the attention of the flower lover. He can now, if he likes, buy special named varieties of the great scarlet species *orientale*. He can raise the Shirleys from seed. The writer has a large double, procured from an American seedsman, called shrimp-pink, which bears noble flowers on tall stems, and lasts a long time in bloom. In passing, flower lovers may be advised to try some of the seed specialities of the larger American firms, such as Atlee Burpee, of Philadelphia; and Child, Floral Park, New York.

Some of their swans may be geese, but all are not. The flaming poppies can be provided with a background of goat's rues (*galega officinalis* and variety *alba*), which grow and flower freely in the poorest soil, are pretty both in foliage and bloom, last for many weeks, and are cheap.

FOXGLOVES, with their tall, bending stems, will lend informality, and these can be raised from seed with sweet-williams and Canterbury bells.

SWEET PEAS are glorious features of grouped borders. Stations should be prepared by deep digging and heavy manuring, behind dwarfer plants of earlier growth, such as pyrethrums and pæonies, as the peas will not make much of a figure before mid-June. With proper soil culture, watering and liquid manuring in dry spells, and persistent gathering, the same clumps will be beautiful from July to October inclusive. A large, sombre object, such as a pine, yew, or cypress, makes the best backing for a clump of sweet peas, as it throws the colours out into bold relief. It is perhaps best to raise the peas in pots in a frame or greenhouse, and plant them out towards the end of April, placing them six inches apart in a ring a yard across; but they may be sown out of doors where they are to flower if more convenient. The varieties are developing rapidly, and fresh colours are constantly appearing, but the flower lover will be wise to hold a reserve of standard sorts of proved merit, such as Nora Unwin, white; King Edward VII., crimson; Queen Alexandra, scarlet; Helen Pierce, veined blue; Miss Willmott, orange pink; Countess Spencer, pink; Lady Grizel Hamilton, pale blue; and Lord Nelson, dark blue—varieties which have distinctive character, and abundance of inherent vigour.

CARNATIONS.—The carnation lover will want to in-

clude groups of his favourite flower for July and August bloom, and may well do so, for few things will be more admired in their season, should all go well with them. Unfortunately, they are attacked by a terrible scourge known as rust, which worries them sadly throughout the Winter and Spring, both out of doors and under glass, but worst in frames and houses. Spraying a solution of liver of sulphur over the plants, one ounce in three gallons of water, may be tried; if it should not check the disease the affected leaves must be picked off, even if the plants are gradually denuded of nearly all their foliage. So long as there is a healthy central crown left in May the plants will grow and flower. In freshly broken-up pasture land incessant trapping with potato and carrot baits will have to be practised to preserve the plants from destruction by wireworms and leather-jackets. Lady Nina Balfour, soft pink; Barras, scarlet; Agnes Sorrel, crimson maroon; Henry Falkland, yellow ground; Hildegarde, white; Sir R. Waldie Griffith, apricot; and Daffodil, yellow; are relatively vigorous and free-blooming varieties. The old clove is poor in bloom compared with these, but not in fragrance.

PINKS.—Clumps of pinks for cutting may be dotted along the front of the border, and for this purpose Mrs. Sinkins and Ernest Ladhams are still among the most valuable, although florists have finer-flowered varieties, notably Brackleen and Chantilly.

LILIES, OX-EYE DAISIES, AND EVENING PRIMROSES.—Lilies will perhaps not be confined to the beautiful white Madonna, recommended for association with larkspurs. There is boldness of colouring enough in the Turk's cap (*martagon*), and in *chalcedonicum*, *pardalinum* (the panther lily), *tigrinum* (tiger lily), *pomponium*, and

rubellum; and these may be grouped with ox-eye daisies (*chrysanthemum maximum*), or *galtonia candicans*, and evening primroses (*Œnotheras*). The variety *fruticosa youngi* is about the best yellow evening primrose, although *biennis* is of bolder growth. Both these and the ox-eye daisies will make magnificent clumps in moist, rich soil. There is no reason, of course, why the golden-rayed lily (*auratum*) should be excluded from any selection of this genus, and if a deep station of fibrous loam and peat can be made for it it will rise to noble proportions. *Giganteum* is another tall and stately lily, well worthy of a selected position in the border. Both *auratum* and *giganteum* are the better for association with robust, early-growing plants, which afford them shelter in spring.

GLADIOLI rank high among late summer flowers. There is no finer border plant for grouping than the old scarlet species *brenchleyensis*, which will cost about a halfpenny a corm, and may be bought with Dutch bulbs in autumn for planting then or in spring. It will probably be at its best in August, when it will be one of the most brilliant ornaments of the border. It looks well near ox-eye daisies, or a white phlox, or goat's rue, or any species of spiræa that is in bloom at the same time. Select varieties such as Commandant Marchand, Enchantresse, Sanspareil, Grand Rouge, L'Incendie, Formosa, and Marie Thérèse will strengthen the flower lover's affection for gladioli, but he may not be able to plant them so largely as *brenchleyensis*, on account of the higher price. The plants will thrive in clayey as well as in loamy soils, but they are not so well suited by chalk. It is well to lift, dry, and store the corms for the winter, doing this in October, and replanting in April.

Lilium giganteum in Mr. A. C. Leney's Garden, Saltwood, Hythe.

MONTBRETIAS.—One of the brightest and cheapest of flowers is the *Montbretia*, which costs little to stock, and spreads rapidly into thick clumps crowned with long, slender stems of orange, yellow, or red flowers. It is both bright and graceful. It does well on banks in shade, and also in cool spots near water.

CANNAS are even more brilliant, but need more cultivation, requiring to be lifted and stored for the winter, and planted in rich soil in May. But they are worth any trouble, because in addition to their beautiful flowers they have very handsome leaves, which soften the brilliance of the glowing blossoms.

PENTSTEMONS have been greatly improved by the Scottish florists, and they are now almost as valuable as anything we have for low groups. They have much of the grace of gladioli, with flowers like giant foxgloves—one might almost say like gloxinias. The colours are very brilliant. Rose and carmine flowers with white throats are the best for collective effect. The plants may be struck from cuttings in autumn in the same way as bedding calceolarias, and are a thousand times more valuable. A cheap way of getting stock is to sow seeds in a frame or greenhouse in February, prick the seedlings off into other boxes, harden off, and plant out. The best of the varieties can be marked for propagation by cuttings, which will keep them true to colour. If the plants flower so profusely and so late that there seems to be no likelihood of getting young growing shoots for cuttings, a few of the plants had better be deprived of their flowers, and given a dressing of rich soil, in order to encourage growth.

SNAPDRAGONS (*antirrhinums*) of the best Scottish strains are most beautiful and valuable. In addition to profuse blooming and rich colours they possess

the merit of growing and flowering continuously for several months, even in poor, shallow soils; and in dry seasons they will be in beauty for a long period. Plants raised from seed in winter, like pentstemons, will probably begin to flower in July, and in all likelihood will bloom continuously until December. In cool, moist soils, in mild districts, they will give flowers most of the winter. Fine self varieties, with crimson, rose, pink, salmon, yellow, and white flowers, will often come from mixed seed, and may be perpetuated by means of cuttings.

THE FLAME OR TORCH FLOWER (*Kniphofia* or *tritoma*) cannot be dispensed with in colour grouping for late summer and early autumn effects. Its burning lampads of orange, scarlet, yellow, and coral, glow with ardent fire among the thinning ranks of the border infantry. The typical "red-hot poker" is the species *aloides* (*uvaria*); there are several handsome varieties of it. *Corallina superba* is excellent too. Half-a-dozen healthy, well-flowered flame flowers look very fine in contiguity to a clump of pampas grass, but they are also very effective when rising near goat's rues, Michaelmas daisies, chrysanthemums, and other late flowers. The plant is propagated by division in spring.

SUNFLOWERS AND GOLDEN ROD. — Tall, yellow-flowered plants that are serviceable in late summer are the sunflowers (*helianthus*), and the golden rod (*solidago*). The former are best represented, perhaps, by the species *decapetalus*, *multiflorus* (Soleil d'Or is a good variety of this), and *rigidus*, of which the variety Miss Mellish may be chosen in preference to the type. All these form columns of glowing colour. The golden rod is slighter and softer, but infinitely pleasing withal,

having a tender, shy droop of its yellow-crested head that is most appealing.

WINTER CHERRIES.—The fine species of winter cherry called *physalis francheti*, with its large, triangular pods of vivid orange, is a fine colour plant that can be raised easily and cheaply from seed in spring.

LOBELIAS.—The tall perennial lobelias, such as *cardinalis* and *fulgens*, and their different varieties, must not be overlooked. These grow about two feet high, and are very bright when several plants are put near together, and grown in rich, moist soil.

AUTUMN COLOUR

Autumn is naturally rich in leaf colour, and this can be supplemented by border warmth of bloom. It is true that the number of plants is limited, but including, as they do, Michaelmas daisies, dahlias, and chrysanthemums, they are full of the highest possibilities. Unless severe early frosts come, dahlias will last through October, and Michaelmas daisies and chrysanthemums will give flowers until December. Another very useful flower is the Japanese anemone (*anemone japonica*), of which there are many good varieties. The false Michaelmas daisy (*boltonia asteroides*) is also valuable.

DAHLIAS need to be chosen with great care, because many of the beautiful sorts which are seen at the shows have no garden value, on account of their short, weak flower stems. It is particularly necessary to exercise caution with the cactus varieties, which are apt to hide their flowers in their leaves. The pæony-flowered section is good for bold effects, although the individual flowers are coarse. The pompon or bouquet section is also excellent; the varieties are compact in growth,

and display their flowers well. Neither the show and fancy, nor single sections, are so good for general effect, although a few varieties have merit.

Trenched, manured soil, and abundance of moisture, suit dahlias. If cuttings are struck in spring, young plants will be ready for the garden by the end of May. They should not be allowed to crowd themselves with foliage, and it is a good plan to restrict them to six branches, which will insure the flowers being well displayed. Earwigs must be trapped with small flower-pots containing hay, or hollow pieces of bamboo. Of cactus varieties for the garden we might choose Britannia, salmon; Effective, fawn; Etna, lilac; Florence Stredwick, white; Mrs. Carter Page, crimson; and Mrs. J. J. Crowe, yellow. Of pompons we could take Bacchus, crimson; Guiding Star, white; Nerissa, rose; Phœbe, orange; Sunny Daybreak, apricot; and Tommy Keith, red, with white tips. Of pæony-flowered varieties we could have H. Horsveldt, mauve overlying fawn; Glory of Baarn, pink, suffused with lavender; King Leopold, canary; Germania, crimson; and Dr. van Gorkum, mauve; but this is a newer class, and it is probable that finer varieties will be forthcoming every year.

THE CHRYSANTHEMUM is of exceptional value, because not only is it inherently beautiful, but it can be shifted from reserve beds to the border in showery weather when approaching the flowering stage, and so fill up gaps. The habit of the plant is neat, the flowering abundant, and the colours are brilliant. Cuttings may be struck in February or March under glass, and the young plants put out in April or May. With a little attention to staking and thinning the shoots (thinning of buds had better be left to growers

for exhibition) beautiful colour clumps may be had, especially if such varieties as Gertie, salmon-pink; Goacher's Crimson, red; Horace Martin, yellow; Nina Blick, bronzy red; Rabbie Burns, pink; White Quintus, white; Crimson Source d'Or, bronzy red; Framfield Pink, pink; and Jimmie, purplish crimson, are selected. These will give flowers, frost permitting, well into November.

THE MICHAELMAS DAISY is one of the abiding glories of the autumn garden. Its perfect hardiness, neat habit, profusion of bloom, and great range of height and colour, render it a most precious plant, well worthy of close study by flower lovers. Propagated with the utmost ease by simple root division in the spring, or by cuttings, and growing in almost any class of soil, it is as manageable as it is beautiful. The best results come from culture in deep, well-manured soils, accompanied by division every year or two. Several varieties of the species *amellus*, notably bessarabicus, Framfieldii, and Riverslea, are good for early blooming. These are followed by the *novæ-angliæ* and *novi-belgii* sections, of which Mrs. J. F. Rayner and White Spray are good examples; also by *cordifolius elegans* and *diffusus horizontalis*, two of the best perennial asters that we have. Lævis Ariadne and Calliope are a charming pair, and for late bloom we have *ericoides*.

THE JAPANESE ANEMONES will do us good service on more modest lines than their great sisters of the autumn border. They are easily increased by division or root cuttings, and thrive in most soils. Lord Ardilaun, Lady Ardilaun, Beauté Parfait, and Coupe d'Argent, are improved varieties of a very good old plant. Autumn species of crocus, or colchiums, or sternbergias, may be grouped near the anemones.

SALVIAS.—In moist, mild places *salvias*, such as the

blue *patens* and the scarlet *splendens*, may be used with good effect. One sees them employed effectively in Irish gardens. They may be associated with white-flowered tobacco plants.

These jottings show that there is no lack of material for making beautiful colour groups in Spring, Summer, and Autumn. And it leaves out of account the great bulk of splendid hardy annuals, which may be flowered in a few weeks from seed sown where the plants are to bloom. These, also trees and shrubs for winter and other effects, must have attention in separate chapters.

CHAPTER II

HARDY HERBACEOUS PLANTS

THE word "herbaceous" has come to stand for "natural" as the word "bedder" has for "formal" gardening. It may be that the garden is nearly filled with shrubs and roses, which are not herbaceous plants at all; no matter, since tender bedding plants are not employed it must be an "herbaceous garden."

The great majority of the splendid plants named in the chapter on colour are herbaceous plants in the true sense, that is, they lose their leaves and stems every year, but live at the root, and spring afresh therefrom in Nature's new season. A rhododendron which holds its leaves throughout the winter, equally with a laburnum which retains only its stems, is non-herbaceous, but a Michaelmas daisy, which loses both, is truly herbaceous. Tulips and other bulbs are herbaceous too.

After all, exact definitions of horticultural terms are of less importance than a proper comprehension of the uses of flowers, and so long as people can be brought to study hardy plants intimately, not merely to be able to name a plant from its flower, but also to know its wants and capabilities, errors of classification can be readily pardoned. Unfortunately, there is a prevalent mistake much more serious than that of definition, that of lumping herbaceous plants together

as a class which will give interest and beauty without cultivation, and artistic effects without arrangement. This arose from the enemies of the bedding system trying to prove too much. In their anxiety to score every possible point in favour of hardy plants they drew parallels between a class that grows perennially in the garden, and another which has to pass several months of the year under glass, of a nature which suggested that the former were practically self-cultivators. If they were, the writer would say of them unhesitatingly that they were no fit companions for everyday human beings, and that it were well that they should pass away, and be no more seen. It is not the beauty of wild nature which produces the strongest influence on untrained minds. The silver cohorts of the heavens, the soft lights of sunset and dawn, the flash of spray, the gleam of gold on the spring pastures, all these are vain, because they are unobserved. Those who have to do with the studies of children know how trivial is the influence upon them of the plant which exists, and how powerful is that which they produce. And children of a larger growth exhibit the same trait. To the workman a broad stretch of marsh seen from a height would convey no message. The far-stretching acres of green meadow flecked with sheep, the brown spires of ripened bean stooks; the waving of reeds in the slow waterways; the sleepy turning of the distant millwheels; the trails of smoke from the lichen-stained farmsteads, the hundred and one things that arrest the attention and fill the mind of the artist, have no meaning for the uncultured. And the spring woodland, with its azure carpet of bluebells, its starry sparkle of anemones, its glistening columns of campion, is equally powerless to move. But a bed of asters that

is the fruit of conscious effort, and stirs such essentially human emotions as those of pride and parenthood, has a real influence.

It is the gardening which calls for effort, the cultivation which stimulates heart and mind, that benefits the world; all other is worthless. It is the garden-beauty which comes in travail that stirs the deepest love. The garden that grows under our hands, the plants that (as it seems to our limited vision) owe their being to us, are those that really move us. Children of our souls, they steal deep into our beings, and spread their influence over all our lives.

We will not look upon hardy herbaceous plants as self-cultivators. An immense class, they present a wide range of requirements. Systems of propagation differ, seasons of blooming are not the same. Some will not thrive without special treatment, few with no treatment at all. The theory of the herbaceous border as a sort of Babel's Tower of plants, into which everything that is available shall be thrust, no matter what its needs or nature may be, is sadly, deplorably false. A herbaceous border is not a Ragged School. It is not a Penitentiary. It is not a Hospital.

Those who want to garden with the least possible effort had better keep to the old bedders, if they cannot leave it alone altogether, which is the best thing. Zonal geraniums are really bright and cheerful flowers, which will grow in almost any soil, and can be bought for half-a-crown a dozen or less in May. They are good enough, too good, indeed, for those who affect to garden, but grudge study and effort. Hardy herbaceous plants repay the closest attention. They are beautiful and varied, flowering at nearly all seasons, often brilliant in colouring, and presenting a great range of height and

habit. With thought, and liberal culture, they can be made to render splendid service. Just as seakale and strawberries will grow year after year on the same ground, and yield crops of a kind, but give far better returns when renewed annually in fresh, enriched soil, so hardy herbaceous plants will exist and flower with little treatment, but develop a totally different character under culture. It is only a few, such as pæonies and alstromerias, that suffer from frequent disturbance. The majority thrive best when divided, or otherwise propagated, every two years. Deep digging and manuring should be practised annually. Each plant should have individual attention, for if it is not worthy of that it is not worthy of inclusion at all. Some, coarse rooters, will spread a great deal too fast at the base; these should be curbed and semi-starved. Others will be weak, perhaps owing to the thievish propensities of an encroaching neighbour, and these should be dressed with fresh soil and manure. Clumps must be kept clear of each other by neat staking and loose tying, in order to avoid that meaningless jumble which so often masquerades as an herbaceous border. Most important of all, the impulse should be resisted which dictates that every plant that comes along should be stuffed in. The term "mixed border" should be expunged for ever from the vocabulary of the flower lover. No such thing as a "mixture" of plants should exist. A "mixture" of drugs, if you like, a "mixture" of nationalities in a gambling saloon; but never a mixture of plants. Even where we are not grouping for colour effects, as described in the previous chapter, we should dispose our plants in distinct sets, so that each kind may display its character and individuality.

In deep, well-manured, thoroughly tilled soil, which,

holding moisture well, is always cool and fertile, the great majority of herbaceous plants will thrive. Nearly all will do on clay if it is brought into a friable condition, but many do not like clay when it is a stiff, inert, ill-cultivated mass, that clings to the tools instead of crumbling. Practically every herbaceous plant will thrive on good loam. Light, sandy soils are not ideal, but can be made to suit the majority of the plants by working them deeply in autumn, and spreading manure on the surface for turning in in spring, and by mulching them in hot weather. Shallow soils on chalk do not give vigorous growth, but often yield very bright colours. They can be improved by digging as deeply as the chalk will permit, manuring, and mulching. Where it is desired to prepare a special station for a particular clump the chalk may be broken up with a pick.

No fruit tree, no shrub, no kitchen-garden crop, responds more generously to good spade culture and manuring than the bulk of hardy herbaceous plants. Plants which, in poor soil, are puny, almost ugly, become in rich, cultivated land beautiful giants. It is in this direction that the practical spadesman with local knowledge can be of great service. He will know when and how the soil is best dealt with. The writer knows of a garden in which a splendid herbaceous border was produced from meadow in seven months, the gardener doing the cultural work, the employer the grouping of the plants.

Herbaceous plants can be put in during autumn or spring. The exact time may well turn on the condition of the land. There should be no hurry to plant in ill-prepared ground, but time should be taken to thoroughly prepare the border, even if that should mean April planting.

Nearly all hardy herbaceous plants can be propagated by division of the roots, and this simple operation may be performed as soon as growth ceases in autumn, or on its resumption the following spring. Perhaps the latter is the better time; certainly, plants rarely fail when divided just as growth is starting. The soil is becoming warm, and rapid root formation is encouraged. Generally the outer are better than the inner portions of the clumps. Care should always be taken to get two or three growing "crowns" or buds with each division.

A very large number of perennials may be raised from seed, and although fresh plants cannot, as a rule, be flowered so quickly from seed as from divisions, a larger number can be raised. A great many seed themselves in the borders, as poppies and other plants will, carpeting the soil around them with green seedlings in autumn. These can be transplanted, and flowered the following year. Seed of most things may be sown in June, as this gives time to get strong plants ready for putting out in autumn, if desired, the same as sweet-williams, wallflowers, Canterbury bells, foxgloves, and other hardy plants treated as biennials are managed. The procedure may consist in preparing a fine, level bed, moistening well, sowing thinly, covering lightly, thinning to prevent early overcrowding, and setting out six inches apart in a spare bed during moist weather in July or August. This always insures strong plants, and is worth the little trouble which it involves.

Plants with thick or fleshy roots, such as Anemone japonica, the Prophet Flower (*arnebia*), the Plume Poppy (*bocconia*), Burning Bush (*dictamnus fraxinella*), Sea Holly (*eryngium*), Oriental Poppy (*papaver orientale*),

the beautiful blue *senecio pulcher*, and *statice latifolia* may be rapidly propagated from short pieces of root in spring, much as gardeners propagate *bouvardias*. In the case of stiff soils it is well to mix some sand and leaf mould together and spread under and over the root cuttings, in order to encourage the rapid formation of roots.

Michaelmas daisies, and some other hardy plants, may be propagated by taking cuttings from the base, or side shoots, if desired.

Timid folk tremble at the idea of digging among herbaceous plants, from fear of injuring the roots. It is this nervousness which leads to so many bad borders. It is true that it is possible to injure the roots of plants by digging, but it is safe to say that where one plant suffers from this cause a hundred suffer from want of cultivation and manure. If herbaceous plants are grown in distinct, uncrowded groups in summer, clear of each other in spite of their being full of growth, it is quite certain that when they have died down the spaces between the "stools" will be so well defined that only the most clumsy and careless digger is likely to do any injury. Dig, then, without fear, but equally, of course, without recklessness. It will generally be best to use a fork. A liberal dressing of decayed manure may be dug in at the same time.

At different periods during the spring and summer, varying with the weather, hoeing bouts will be necessary. Every shower brings weeds through, and it saves labour to deal with them when they are small. Periodical hoeing is an excellent thing for the plants. It takes the grower among them, and gives him opportunities of seeing what they need, in the way of restriction, encouragement, staking, and tying.

When the earlier things go off, and the foliage begins

to get dingy, the plants may be cut down to the ground. It does not hurt them, and room is made for the extension of later plants, or for putting out clumps of things that transplant when in bud, such as chrysanthemums and annual asters.

Slugs and snails are perhaps the worst enemies of hardy herbaceous plants. They cannot do material harm to very strong things, such as Michaelmas daisies, unless present in overwhelming numbers; but they may prove serious in the case of choice weaker plants. Dustings of lime at night, or soakings of lime water, make them uncomfortable, and reduce their numbers. They may be trapped with small heaps of brewer's grains, and then killed by immersion in brine. Wireworms and leatherjackets may injure fleshy-rooted plants, and will certainly be present in land freshly broken up from pasture. A dressing of vaporite, which is obtainable from seedsmen who deal in horticultural sundries, will check them, but choice plants ought to be further safeguarded with traps formed of pieces of carrot, impaled on the end of a sharp stake, and buried two or three inches deep near the plants which it is desired to protect.

Prominence was given, in the chapter on Colour, to certain herbaceous plants of particular value for giving fine colour effects, but there are many beautiful flowers, not suitable for that purpose, which are worthy of culture. We need rarely restrict ourselves to one border. Where there is room we can have one capacious border for colour effects, and smaller ones, at the front of shrubberies, beside garden paths, and under house walls. Or we may have special herbaceous beds. The dwarfest plants, and those of carpeting habit, may be put among stones, or used as edgings.

The following selections, classified according to height, and with their colours, will show the great range of material which exists, and at the same time afford useful hints to the planter.

Plants from one inch to six inches high.

Ajuga reptans, blue.
Androsace chamæjasme, pink and yellow.
Anemone apennina, blue.
„ alpina sulphurea, yellow.
„ nemorosa, white.
„ ranunculoides, yellow
Campanula garganica, blue.
„ pulla, blue.
Cyclamen coum, rose.
Dianthus alpinus, pink.
Draba aizoides, yellow.
Erinus alpinus, pink.
Erythronium dens-canis (dog's tooth violet), pink and white.
Gentiana bavarica, blue.
„ acaulis, blue.
Iris alata, lilac, purple, and yellow.
Iris persica, lilac and yellow.
Leucojum vernum (spring snowflake), white and green.
Linaria alpina, violet.
Lysimachia nummularia (creeping jenny), yellow.
Milla biflora, white.
Myosotis alpestris (forget-me-not), blue.
Omphalodes verna, blue.
Phlox reptans, violet.
Primula scotica, pink.
„ viscosa, purple.
Sanguinaria canadensis (bloodroot), red.
Saxifraga Fortunei, white.
Scilla sibirica (Siberian squill), blue.
Silene alpestris, white.
Soldanella alpina, violet.

Plants from six inches to a foot high.

Achillea Clavennæ, white.
Ajuga genevensis, purple.
Anemone narcissiflora, cream.
„ pulsatilla (pasque flower), violet.
Aster alpinus (michaelmas daisy), purple.
Campanula carpathica, blue.
„ „ alba, white.
„ portenschlagiana, purple.
Corydalis lutea, yellow.
Erigeron aurantiacus, orange.
Gentiana pneumonanthe, blue.
Geranium Endressi, pink.
Meconopsis cambrica (Welsh poppy), yellow.
Myosotis dissitiflora (forget-me-not), blue.
Ourisia coccinea, red.
Plumbago Larpentæ, violet.
Primula denticulata, lilac.

Plants from six inches to a foot high (continued).

Saxifraga Hostii, pink and white.
Stachys grandiflora, violet.
Thalictrum anemonoides (meadow rue), pink.
Triteleia uniflora, lilac.
Zephyranthes atamasco, white.

Plants from one foot to two feet high.

Achillea ptarmica the pearl, white.
Anthericum liliastrum (St. Bruno's lily), white.
Aquilegias (columbines), various colours.
Armeria cephalotes, pink.
Aster amellus, purple, and varieties.*
Aster dumosus, mauve.*
Cheiranthus Marshalli, orange.
Centaurea montana, blue.
Commelina cœlestis, blue.
Delphinium nudicaule, red.
Dicentra (dielytra) spectabilis, pink.
„ formosa, red.
Dodecatheon meadia (American cowslip), various colours.
Doronicum (leopard's bane) austriacum, yellow.
„ plantagineum excelsum, yellow.
Erigeron speciosus (fleabane), violet.
„ Manescavi (heron's bill), pink.
Eucomis punctata, green.
Funkia grandiflora (plaintain lily), white.
Gentiana Andrewsi, blue.
Geranium sanguineum (crane's bill), red.
Geum coccineum (avens), red.
Gillenia trifoliata, pink.
Hemerocallis Dumortieri (day lily), orange.
Lobelia cardinalis, red.
„ fulgens, red.
„ syphilitica, blue.
Lychnis viscaria flore pleno, rose.
Monarda didyma (bergamot), red.
Morina longifolia, purple.
Ornithogalum arabicum, white.
Orobus aurantius, yellow.
Papaver nudicaule, yellow.
Polemonium cæruleum, blue.
Primula japonica, rose.
Ranunculus aconitifolius, white.
Saxifraga granulata, white.
Senecio pulcher, rosy purple.
Spigelia marilandica, red and yellow.
Spiræa palmata, red.
Tradescantia virginica (spiderwort), blue.
Trillium grandiflorum (wood lily), white.

* These are Michaelmas daisies.

Eremurus Himalaicus.

Plants from two to three feet high.

Achillea millefolium roseum (milfoil), pink.
Anemone japonica, rose, also white and other varieties.
Campanula persicifolia, blue.
„ „ alba, white.
„ trachelium, blue.
Centranthus ruber (valerian), red.
Echinops ritro, blue.
Geranium pratense, blue
Geum rivale, red.
Hemerocallis flava (day lily), orange.
Iris florentina, white.
„ germanica (flag), several varieties.
Lilium chalcedonicum, red.
„ martagon, red.
Lychnis coronaria, red.
„ vespertina flore pleno, white.
Lysimachia clethroides, white.
Pæony, tree, many varieties.
Pentstemons, many varieties.
Spiræa filipendula, cream.

Plants from three to five feet high.

Acanthus mollis, purple and white.
Achillea eupatorium, yellow.
Aconitum napellus (monkshood), blue.
Aster floribundus, pink.
„ Novi-belgii, several varieties.
Baptisia australis, blue.
Romneya Coulteri (Californian poppy), white.
Rudbeckia grandiflora, purple and yellow.
Spiræa ulmaria (meadow sweet), white.
Yucca angustifolia (Adam's needle), cream.

Plants five feet high and upwards.

Actinomeris procera, yellow.
Amicia zygomeris, yellow.
Aster Novi-angliæ, many varieties.
Clematis æthusifolia, white.
Centaurea babylonica, yellow.
Epilobium angustifolium, red.
Eremurus robustus, pink.
„ himalaicus, white.
Gynerium argenteum (pampas grass), white.
Helianthus (sunflower) several varieties.
Lilium giganteum, white.
Polygonum cuspidatum, white.
„ sacchalinense, yellow.
Rudbeckia maxima, yellow.
Silphium laciniatum, yellow.
Solidago speciosa (golden rod), yellow.

The following are a few of the principal kinds classified according to their season of flowering. In most cases there are several species, and in some cases numerous varieties, of each. Good varieties of the principal kinds are named in the chapter on Colour.

Those which will thrive in partial shade, and those which will tolerate a hot, dry place, are indicated.

Spring

Adonis vernalis.
Alyssum saxatile.
Anemones, shade.
Antirrhinums (snapdragons), dry.
Aquilegias (columbines), shade.
Arabis (rock cress), dry.
Aubrietia, dry.
Bellis (daisy).
Corydalis, shade.
Daffodils, shade.
Dielytra, shade.
Doronicums.
Geum.
Iberis (candytuft).
Irises, some dry.
Lily of the Valley, shade.
Pæonies.
Primroses and polyanthuses, shade.
Pyrethrums.
Ranunculuses.
Saxifrages, dry.
Scillas, shade.
Tiarella (foam flowers), shade.
Trollius, shade.
Tulips.
Violas.

Summer

Achillea (milfoil).
Aconitum (monkshood).
Alstromeria, dry.
Anchusa.
Anemones, shade.
Anthemis.
Anthericum.
Aster (Michaelmas daisy).
Bocconia (Plume poppy).
Campanulas.
Centaureas.
Chrysanthemum (ox-eye daisies).
Coreopsis.
Delphiniums.
Dianthuses.
Dictamnus (burning bush).
Echinops.
Erigeron.
Erodium.
Eryngiums (sea holly).
Funkias (plantain lilies), shade.
Gaillardias.
Galegas (goat's rues).
Galtonia.
Gentians.

Geraniums, shade.
Geum.
Gladioli.
Gypsophilas.
Heleniums.
Helianthemum (sun rose), dry.
Helianthus (sunflower).
Hemerocallis (day lily).
Heuchera, shade.
Hollyhocks.
Hypericum (St. John's wort), shade.
Inula.
Irises.
Kniphofia (tritoma).
Lathyrus (pea).
Lobelias.
Lupins.
Lychnis (dry).
Meconopsis (poppy).
Mimuluses (monkey flowers), shade.
Monarda (bergamot).
Oenotheras (evening primroses), shade.
Pæonies.
Pansies.
Papaver (poppy).
Pentstemons.
Phloxes.
Physalis (winter cherry).
Polygonums (knotweeds).
Potentillas (cinquefoil).
Pyrethrums.
Rudbeckias (cone flowers).
Scabious.
Senecio.
Solidago (golden rod).
Spiræas (meadow sweet), shade.
Statices.
Stenactis.
Thalictrum (meadow rue), shade.
Verbascums (mulleins).
Veronicas.
Vinca (periwinkle), shade.
Violas, shade.

Autumn

Anemones, Japanese, shade.
Asters (Michaelmas daisies).
Boltonia (false aster).
Chrysanthemums.
Dahlias.
Sedum spectabile.

Winter

Anemones.
Arabis, dry.
Aubrietia.
Chionodoxa (Glory of the snow).
Christmas rose (helleborus).
Crocuses.
Daffodils, shade.
Forget-me-nots, shade.
Fritillarias (snake's head lilies)
Hepaticas, shade.
Irises.
Orobus.
Scillas, shade.
Violets, shade.

CHAPTER III

ROCKERIES

In revising some earlier pages of the present work, the writer observes passages which the hypersensitive rockery lover might possibly construe as hostility to a form of flower-growing which enjoys high favour. The more judicious reader will not so misread them. To state that a rockery is not a flower garden is hardly the same as saying that a rockery is undesirable, any more than stating that a chorus does not constitute an opera reflects on the chorus. And to condemn the dragging in of a rockery in a place for which it is unsuited, is not to suggest that a rockery should never be provided in a place for which it *is* suited.

It would be foolish and unreasonable to take up an attitude of unmeasured hostility to rock-gardening merely because a few people have lost their heads over it. There are people who lose their heads over King Charles spaniels, but that cannot be accepted as sufficient grounds for advocating the immediate immolation of the whole race of dogs.

The interest and charm of rock-gardening are conceded, not merely without reluctance, but with positive pleasure. If the pleasure falls short of enthusiasm it is because that is reserved for the larger aspects of gardening—the creation of beautiful colour pictures. The rockery shall form an item—an important and

valued item—in the general scheme of the garden; it shall be one of the most cherished children in the floral family. But for the fear of the greater interests of the garden suffering, it would be easy to go further than this. Most sweet, most dainty, most appealing, are the denizens of the southern mountains. One's heart softens to a tiny, rose-hued phlox cradled amid stones as it does to a pink and white, smiling infant in its cot.

One cannot wonder that women love rock plants when one sees how intimate is their appeal. They are not rampant, assertive things, growing like forest ponies, self-confident, exuberant, all but wild. For the most part they are small, gentle, yielding. Confined in their cribs of stone, they seem to stretch out wee pink arms asking mutely for constant love, and attention, and help. Dear, clinging, adorable morsels of plant humanity, they stir deep-seated emotions of protecting motherhood.

In the small garden which affords no scope for flower-grouping a rockery will be supreme. It will be a little world unto itself. There the flower lover will spend happy hours, amid sunshine and tender influences. Some of the plants will be in bloom before Winter is out—a choice snowdrop, a clump of some beautiful species of crocus, as delicately pencilled as a cloud; a dwarf but glittering iris. Spring will bring a host of lovely things—silvery cushions of cerastium and saxifrage, dainty androsaces, sparkling phloxes, soft-toned anemones, gentians with the deep blue of Italian skies, silvery spires of perennial candytuft, and glowing primulas. Carpets of blue and white rock cresses and yellow alyssum will spread over the stones. Summer will give many beautiful things, and in cool, moist, shady

recesses colonies of ladies' slipper orchids will lift their graceful flowers. Autumn will yield blossoms too—perhaps a cluster of hardy cyclamens, the golden light of the sternbergia, and many charming crocuses, amongst others. There will be few months in which some child-flower does not smile a winning welcome to the gardener.

Yes, fancy, imagination, love, play brightly around the rock garden. We enjoy it for what it is, and not less for what it suggests—the pure air of the snow-clad mountains; the clear ringing voices of the goatherds; the glowing sheets of blossom on the Pyrenean slopes and in the Tyrolese woodland. We enjoy, but we retain our mental balance. We do not let enthusiasm carry us away, and rush us into schemes that are beyond our means. We know that rock-gardening is relatively costly—that in proportion to the area of ground which the rockery covers it will entail ten times the expense of other portions of the garden. Soil of the best, suitable stones, a large number of small plants, must all be provided. We see all this, and we take a sensible view. If we cannot have a large rock garden we will content ourselves with a small one. And at all events we shall have the satisfaction of knowing that if we cannot emulate the effects of our more wealthy neighbours, all which we attempt is within the scope of our means, and is the unaided work of our own hands.

In the chapter "The Conquest of the Wild" we saw how, in the formation of drives and the facing of banks —operations that generally accompany the making of a new house and garden—we look ahead, and form the nucleus of a rockery.

The thin coating of earth lying just beneath turf is generally very fertile. It is no better than the turf itself

when that is decayed, but an interval of several months elapses before stacked turf is ready for use. The "under-cut" is ready at once, and the only thing against it is that it is likely to contain a good many wireworms and leatherjackets, which are not desirable occupants of a rockery. In the hope of getting rid of them the soil should be laid in a shallow heap, when carted to the place where the rockery is to be made, and studded with baits of carrot and potato impaled on sticks, which can be drawn out and examined at intervals. Additions of lime and mortar rubbish will discourage the pests.

The soil may be enriched with rotten manure. Decayed turves which have lain in a heap for several months will not need this addition, but may be chopped up and used as they are. Full of fibre, the material will be thoroughly fertile, and such as rock plants love. Mere dust and manure are not good enough for them. They need soil with fibre. Road grit, mortar rubbish, and stone chips are good substances to add to stiff soil.

In taking up turf, then, we find soil for rockeries. If the contractor who does our carting for us can lead in rock before our drive receives its finishing coat of gravel, so much the better; we then get the second component of our rockery, and we get it without taking rough carts over a brand-new, highly polished, spick-and-span drive.

Rock is not always easy to get locally. There may be no quarries within fifty or a hundred miles. This raises an important question. Since railway rates must come into the business, shall we not go the whole hog, and get Derbyshire stone? Any of the nurserymen who send us catalogues of hardy plants, and show us their beautiful wares at the great flower shows, will give us

an estimate, and we can ascertain to a penny how much the stone will cost delivered at our station. Of course, the amount will be three or four times as much as we should have to pay if we were able to get rock by traction-engine from a quarry a few miles away, but the stone will be much better, probably.

It is the difficulty of getting large stones that induces people to make rockeries of burrs and clinkers. It needs a cunning hand to make a pleasing rock garden out of these unnatural substances; the more credit if success follows.

The better the soil, and the harder the stone, the more satisfactory the result will be. The quantity of the former, and the size and nature of the latter, will decide us as to whether we shall be satisfied with a rockery, or can soar to a rock garden. For there is a world of difference between the two. A nice rockery may be made of a simple mound consisting of a few cartloads of soil, with stones embedded. A rock garden calls for arrangement—design. There is no reason why an amateur should not make a very satisfactory rockery, provided he works on the six cardinal points:

(1) to provide good soil;
(2) to use large stones;
(3) to bed the stones firmly;
(4) to tilt the stones inward instead of outward in order to retain moisture;
(5) to make pockets wide at the top and narrow at the bottom;
(6) to avoid shade.

It is not, however, so simple a matter to make a rock garden, possibly involving steps and terraces, and the use of very large slabs of stone. Where considerable

expense is being gone to it is perhaps wise to go to a little more, and get the assistance of an expert from one of the hardy-flower firms. These people would give an estimate for the whole thing—stone, freight, construction, supervision, even plants too—if desired.

The most common fault in home-made rockeries is that they are over-stoned and dry. Over-stoning is really easier when small than when large stones are used. Pieces of stone weighing an average of seven or eight pounds each are much more satisfactory to work with than stones weighing no more than a pound. If they are set approximately in tiers, mostly horizontally, except for the top tier, which may be vertical, they are likely to look well. The rockery will be dry and unsatisfactory if the stones tilt outward, because rain will be thrown off. If the stones tilt inward, and if the pockets are wider at the top than the bottom, water will soak in, and sustain the plants. What is said as to the necessity for moisture must not lead the rockery-maker to suppose that a wet site is desirable; it is objectionable. But the plants must have summer moisture.

When the tiers have been completed smaller stones may be placed between them at right angles, in order to form pockets. The rockery will then be ready for the plants. This "terrace" system of rockery-building has four important things to recommend it: (1) it provides an intelligible plan for the beginner to work on; (2) it gives plenty of room for plants; (3) it retains moisture; (4) it has a natural appearance.

Let us now turn to a consideration of the plants. One of our first thoughts must be to provide for flowers over a long season, so as to maintain the interest, and this we can achieve without difficulty. We will classify

them in their seasons, and put an asterisk to a few of the most useful and interesting plants for the benefit of those who cannot grow a large number.

SPRING

Adonis vernalis, yellow.
Ajuga genevensis, blue.
*Alyssum saxatile compactum, yellow.
Anemone apennina, blue.
,, blanda, blue.
* ,, nemorosa cærulea, blue.
,, pulsatilla (pasque flower), violet.
Antennaria tomentosa, a silvery carpeter.
*Arabis albida, white.
* ,, alpina flore pleno (double), white.
*Arnebia echioides (prophet flower), yellow.
*Aubrietia Leichtlinii, rosy red.
* ,, Campbelli, violet.
* ,, Fire king, bright red.
*Cerastium Biebersteinii, a silvery carpeter.
Crocus aureus, orange.
,, biflorus, white.
,, chrysanthus, orange.
* ,, imperati, purple.
,, Sieberi, lilac.
,, tommasinianus, lavender.
Cyclamen coum, rosy red.
,, hederæfolium, purple.
Dianthus (pink) alpinus, rose.
,, arenarius, white.
* ,, cæsius (cheddar pink), rose.
Dodecatheon meadia (American cowslip, lilac.
Draba aizoon (whitlow grass), yellow.
Dryas octopetala, white.
Erinus alpinus, violet.
Erythronium dens canis (dog's tooth violet), rose.
,, grandiflorum, yellow.
,, giganteum, white.
*Gentiana acaulis, deep blue.
,, verna, blue.
Hepaticas, blue, red, and white (like shade).
Hutchinsia alpina, white.
*Iberis (perennial candytuft) corifolia, white.
,, Gibraltarica, white.
* ,, sempervirens, white.
Iris biflora, purple, yellow beard.
,, cristata, lilac, yellow crest.
,, iberica, lilac and white.
,, pumila, lilac, white beard.
,, sisyrinchium, lilac, yellow spots.
*Leontopodium alpinum (edelweiss), white foliage.
Linnæa borealis, flesh.
Linum alpinum, blue.
,, arboreum, yellow.

CERASTIUM BIEBERSTEINI, A SILVERY-LEAVED, FREE-FLOWERING PLANT FOR THE ROCKERY.

Myosotis alpestris (forget-me-not), blue.
* „ dissitiflora, blue.
*Narcissus cyclamineus, yellow.
* „ Johnstoni, Queen of Spain, yellow.
„ triandrus (angel's tears daffodil), yellow.
„ triandrus albus, white.
Omphalodes verna, blue.
Orobus vernus, blue.
Oxalis floribunda, rose.
Phlox divaricata, lilac.
„ ovata, red.
„ reptans, violet.
„ subulata, white.
* „ „ frondosa, rose.
* „ „ Newry Seedling, lilac.
* „ „ Vivid, rose.
Primula denticulata, lilac.
*Primula japonica, crimson (cool place).
„ marginata, violet.
* „ rosea, rose (cool place).
„ scotica, purple, yellow centre.
Ranunculus amplexicaulis, white.
Saxifraga (rockfoil) aizoon, cream.
„ ceratophylla, white.
„ cordifolia pyramidalis, red.
* „ granulata, white.
* „ oppositifolia major, purple.
* „ Wallacei, white.
Soldanella alpina, violet.
Triteleia uniflora, lilac.
Veronica chamædrys, blue.
Waldsteinia trifolia, yellow.

SUMMER

Acæna microphylla, red and green.
Acantholimon glumaceum, rose.
Achillea Clavennæ, white.
* „ tomentosa, yellow.
Æthionema grandiflorum, rose.
*Androsace carnea, rose.
* „ lanuginosa, rose.
„ villosa, rose.
Antennaria dioica, pink.
*Arenaria balearica (sandwort), white.
*Armeria cephalotes (thrift), crimson.
Aster alpinus, purple.
Campanula carpathica, blue.
„ „ alba, white.
* „ garganica, blue.
* „ pulla, blue.
„ Raineri, blue.
Cheiranthus Marshalli, orange.
Convolvulus mauritanicus, blue, white throat.
Coronilla varia, rose, trailer.
Cyclamen europæum, red.
Cypripedium calceolus, red and yellow.
„ spectabile, rose and white.
Dianthus alpinus, rose.
„ alpestris, red.

Dianthus cruentus, red.
* ,, deltoides (maiden pink), rose.
,, neglectus, rose.
* ,, superbus, rose.
Epigæa repens, white, creeping.
Erodium macradenium, violet.
Gentiana bavarica, blue.
Geranium argenteum, red.
,, lancastriense, rose.
Gypsophila repens, white.
Helianthemums (sun roses), red, white, and yellow varieties.
Iris Gatesii, white, marked grey.
Linaria alpina (toadflax), violet and yellow.
Linum perenne, light blue.
*Lithospermum prostratum, blue.
Nierembergia rivularis, white trailer.
*Onosma tauricum (golden drop), yellow.
Oxalis Bowiei, rose.
*Papaver (poppy) nudicaule, orange.
*Primula cortusoides, rose.
,, farinosa, lilac.
,, viscosa, purple, white centre.
Pyrola rotundifolia (winter green), white.
Ranunculus montanus, yellow.
Saponaria ocymoides (soapwort), white.
Saxifraga cotyledon pyramidalis, white.
* ,, hypnoides, white.
* ,, longifolia, white.
*Sedum (stonecrop) acre, yellow.
* ,, glaucum, pink.
* ,, lydium, pink.
*Sempervivum (houseleek) arachnoideum, red.
*Sempervivum tectorum, red.
*Silene (catchfly) acaulis, pink.
,, maritima, white.
* ,, schafta, rose.
Thymus serpyllum, purple.
,, lanuginosus, woolly.
Tunica saxifraga, rose.
Veronica teucrium, blue.
,, prostrata, blue.
,, rupestris, blue.

Autumn

Colchicum autumnale (meadow saffron), purple (there are several forms of this, with different coloured flowers, both single and double).
,, speciosum, lilac, several varieties.
Crocus iridiflorus, blue.
,, longiflorus, lilac.
,, nudiflorus, purple.
,, sativus (saffron crocus)
* ,, speciosus, purple.
* ,, zonatus, rosy lilac.
*Cyclamen coum, rose.
,, europæum, red.
Sternbergia lutea, yellow.

SAXIFRAGA WALLACEI, A POPULAR ROCKERY PLANT.

Winter

Several of the Spring species of Crocus may be in bloom in Winter.

Cyclamen coum, rose.
Iris alata, lilac and purple.
* ,, Bakeriana, violet and white.
,, Danfordiæ, yellow.
* ,, histrio, lilac.
* ,, persica, yellow, green, and lilac.
* ,, ,, Heldreichi, lavender, yellow crest.
* ,, reticulata, violet, lined yellow.
Iris reticulata Krelagei, purple.
,, rosenbachiana, yellow, orange, and purple.
,, Vartani, lilac, yellow crest.
*Snowdrop (Galanthus) Elwesii, white; there are several good varieties, notably whittallii.
,, plicatus (crimean snowdrop), white.

Plants for a Dry Rockery

We have seen that dry rockeries are to be avoided if possible, but it may be useful to name a few plants which will do better than the majority of kinds in a dry position.

Acæna Buchanani.
Acantholimon.
Achillea argentea.
Alyssum saxatile compactum.
Androsace lanuginosa.
Anthemis aizoon.
Arenaria montana.
Armeria laucheana.
Artemisia sericea.
Aubrietias.
Campanula pumila.
Cerastiums.
Cheiranthus alpinus.
Corydalis lutea.
Cytisus Ardoinei.
Dianthus cæsius.
,, Fischeri.
Dryas octopetala.
Erinus alpinus.
Gypsophila prostrata.
Helianthemums (sun roses).
Iris pumila.
Oxytropis campestris.
Phlox subulata varieties.
Saponaria ocymoides.
Sedums.
Sempervivums.
Tunica saxifraga.
Veronica saxatilis.
Vesicaria utriculata.

Plants for a Shady Rockery

We have seen that a shady rockery is not good for most plants, but the following will thrive. It must be admitted that several are larger plants than most people care to put on rockeries.

Anemones.
Corydalis.
Cardamine.
Epimediums.
Funkias.
Hellebores.
Hepaticas.
Orobus.
Podophyllum.
Saxifraga geum.
Sisyrinchium.
Solomon's Seal.
Tradescantia.
Tiarella (foam flower).
Trillium grandiflorum (American wood lily).
Waldsteinia.

The person who studies rock plants will find that all cannot be treated alike. Different soils and aspects are called for. Some need winter protection. Some need lime. It is impossible, in a general work, to state all the differences. To deal with each of the principal kinds fully would fill a large volume. Experience, and perusal of special works, by those who are going into rock-gardening thoroughly will soon teach valuable lessons.

As a final word, 'ware slugs and snails, which are often very destructive. Trap them with heaps of brewer's grains at night; search for them unremittingly. Very choice plants may be preserved by placing a collar of brass wire gauze round them.

CHAPTER IV

ROSE BEAUTY

A BEAUTIFUL rose garden, with its brilliant pillars of ramblers, its glowing beds, its floral chains, its arches with their dangling sprays, its perfumed paths, presents an alluring picture to the flower lover. He may have come to it straight from a rose show, with its intolerable rows of green boxes, and its insufferable atmosphere of narrow specialism; and he gazes with a great uplifting of the heart, and with a range of vision that suddenly grows wider—almost illimitable.

A flower capable of winning a prize may never have been cut from the garden. There might be flowers in thousands—single and double; small and large; flowers borne on long individual stems; flowers in thick clusters; flowers white, yellow, copper, pink, rose, carmine, scarlet, and crimson; flowers of many forms, and many hues; but no bloom which, cut and substituted for one of the flowers in a prize stand, would not be considered as weakening rather than strengthening the box.

The rose exhibitor fixes certain standards, and they are not the standards of the rose gardener. The former concerns himself with the size, shape, youth, and freshness of the individual flowers. He does not consider their cumulative effect on the plants at a distance, but their appearance on a board immediately under his eye. He may or may not be a good rose gardener, generally

he is not. His plants are arranged in stiff rows, with a forest of stakes holding up an array of grandmother's nightcaps, the object whereof is shade for certain selected flowers. As a rule, the place is only of interest to the rose gardener in so far as it contains new varieties, and certainly the rose exhibitor is generally a great man for novelties. He is always on the look-out for new things, with a view to putting something fresh into his boxes.

The rose gardener will not go to an exhibitor's garden for lessons in the use of roses for beautiful effects out of doors, on the plants, but to places where roses are studied as garden plants, such as Kew, and the wonderful gardens of the Royal Horticultural Society at Wisley, Surrey. The gardens of exhibitors are often mere breeding-grounds for silver cups. They are not considered as beautiful creations, sufficient in themselves for human satisfaction, but as plant studs, which must yield a certain amount of stock that can be turned into money.

A rose garden should be as much the expression of pure art, unsullied by any ulterior consideration of medals and prize cards, as a great picture or musical composition. If flowers suitable for winning prizes can be cut from it without sacrificing the main object well and good, but they should only be a secondary consideration. Directly they are put into the first place the garden tends to suffer. It is not that the plants are bad; plants to yield prize blooms must be of the best. It is that the spirit of repression becomes active, and the plants are prevented from assuming free, loose, and graceful forms. It is only just to acknowledge that things are not nearly as bad as they were. Pressure of public opinion has led to the in-

clusion of classes for decorative garden roses in the schedules of the principal shows, and not only exhibitions, but gardens, are the better for the change. The restricted plant still receives the most attention in the exhibitor's garden, however, because the principal prizes are offered for individual flowers.

In planting a rose garden one should no more be dominated by the idea of money than Holman Hunt was when he painted "The Light of the World." The painter was inspired by the noblest and purest instincts of his glorious art; and the rose gardener should be moved by the same influences. He should have an ideal, and it should be a lofty one. He should not desire to snatch a trophy from the hands of a rival, but to express, in beautiful flower pictures, the emotions which have taken possession of him.

The rose is pre-eminently a plant which lends itself to artistic use. Consider the great diversity of habit which the different classes display—the long, graceful, arching growths of some, the drooping habit of others, the trailing shoots of the wichuraianas, the dense, bushy, rugose character of the Japanese. Observe the multitude of loose clusters in varieties like Alister Stella Gray, the massive, glowing bunches of the ramblers, the shower of brilliant flowers on Carmine Pillar, the thickly clad sprays of the Penzance briers. While most are leaf-losers in winter a few are evergreen.

There are possibilities in roses which few plants possess, and which are still only imperfectly realised. In a great many cases Crimson Rambler is the only representative in flower gardens of a large and valuable class. Beautiful rose though it is, it conveys but a limited idea of the wealth of material available. An

arch of Crimson Rambler (often, too, in an inappropriate place) should not be the ultimate expression of the flower lover's leanings towards the artistic use of roses. He should endeavour to form an actual rose garden, however small circumstances might compel it to be, and he should try to represent within it the various beautiful forms which roses take, not contenting himself with a few formal beds and the inevitable arch.

Waste Places Beautified by Roses

There are waste places in many gardens which could be transformed into charming rose homes. Perhaps it is a worn-out orchard, the trees of which are in the last stage of decrepitude, and have long ceased to bear crops of any value. Perhaps it is a piece of an over-large kitchen garden with a clay soil that yields nothing better than potatoes of poor quality.

There are great possibilities in the orchard. Those old trees, which are picturesque for a week or two in spring during the seasons when they happen to bloom, and desperately ugly all the rest of the year, are veritable gifts from Heaven for supporting roses With a little brisk, well-judged work with the saw they can be made to yield double service. Some of the upper forks can be taken out, deprived of the small twigs, and set in the "picture beds" (see Chapter V., Part II.) to support semi-climbing varieties—roses which are neither dwarfs nor pillar plants, but are often spoiled by being barbarously pruned to ground eyes, whereas if lightly pruned they would produce dozens of graceful sprays. The main body of the trees will support the typical pillar roses, such as

Carmine Pillar, which will send its long canes gratefully up the gnarled trunks, and fling its fiery gonfalons in brilliant confusion about the topmost stems. Of course, manure will be wanted, for the soil may have been impoverished by the fruit trees, but it is easily provided.

The bloated kitchen garden has possibilities also. People often plant potatoes with little other object than to fill up ground. But potatoes are one of the worst crops to fill up heavy land with, being susceptible to blight, and generally wanting in flavour. It were surely better to buy high-quality potatoes from lighter soil than to "fill up" with an unsuitable crop, which, after all, hardly pays for the growing. Heavy kitchen-garden soil, which has probably been deeply cultivated and well manured, will grow splendid roses. All that is needed is a plan and a supply of suitable supports. The beautiful rose garden at Eastwell Park, near Ashford, Kent, is formed of the original kitchen garden, and the fruit trees which once grew there for fruiting purposes now serve as supports for roses.

Charming Designs for Rose Gardens

The rose garden need not be large, nor need it be very costly, either to make or maintain. A charming design can be carried out within the compass of a few square rods. Perhaps the rose lover will lean to the main principle underlying the gardens designed by the late Dean Hole — namely, a series of beds, each filled with one chosen variety of rose, surrounding an interesting central object, such as a fountain, or an arbour. The entrance is arched, of course, and pillars are arranged beside the walks, all

of which are arched. The principle might not suit all places, but it has much to commend it. It has style, force, and character. It is a happy combination of the formal and the informal. If there is any tendency to stiffness in the beds, it is relieved by the liberal provision of arches and pillars. Some rose lovers might demur to the one-bed-one-variety system, on the ground that it greatly limits the number of sorts which could be grown, and also leads to sameness, but it has much to commend it. With a wise choice of vigorous, free-blooming varieties, beautiful colour groups can be produced, and the cumulative effect is far more powerful than any that can be produced by mixing varieties.

Whether large or small, the rose garden must be free from stiffness. The design may be simple, but it must be harmonious. The aim should be to produce a general effect that, while rich and warm, is nevertheless light and graceful. A square could be treated as follows: At each right angle form a bed which presents a concave outline to the centre. At each corner of each bed place a pillar, connected by chains with a series of pillars along each side of the square, thus completely enclosing it. Form in the centre of the garden an octagonal bower, a tall central pillar being connected by light poles with the eight outer pillars. Surround the bower with a set of eight heart-shaped beds, the point of each facing the centre of the eight bays of the octagon. Complete the design by forming four crescent-shaped beds, one at the back of each pair of hearts.

This design is essentially simple, and it is beautiful. It robs the square of all stiffness. It is equally good on a large and on a small scale. It combines the

formal with the informal. It is harmonious, and provides abundance of scope for the use of the lovely pillar roses which are now so popular. They will climb the pillars, and ramble along the chains. The heart beds may be planted with one variety each, strongly-marked, continuous bloomers being chosen. The crescents may be filled with mixed varieties, diversified by low stumps. Here, then, is a plain, rectangular piece of ground turned into a beautiful rose garden, absolutely informal, full of lightness, grace, colour, and beauty. It is only one of many plans which may be resorted to in order to form interesting and charming features in flower gardens.

Pergola, Pillar, and Arch Roses

The great rose growers of the past were almost entirely exhibition men, and knew little or nothing of the making of rose gardens. Perhaps we ought to sympathise with them rather than blame them, because they lacked the beautiful material which we possess to-day. They had no Crimson Rambler, no Carmine Pillar, no Hiawatha, no Penzance Briers. They had, however, Félicité Perpétue, Bennett's Seedling, Céline Forestier, Wm. Allen Richardson, Blairii No. 2, Maiden's Blush, the Banksian, Boursault Amadis, and Gloire de Dijon. Looking backward, one recalls the days when Gloire de Dijon was grown in nearly every garden, and was on the tongue of every rose lover. Wm. Allen Richardson, pretty in the bud, though coarse as a blown flower, also had a wide circle of admirers. Where are these old favourites now? Some of the old trees still live, but the number of fresh ones planted can only be small compared with what

it used to be. Both Gloire de Dijon and Wm. Allen Richardson are wall rather than pillar plants, but Félicité Perpétue and Bennett's Seedling are admirable pillar roses. The former clouds its supports over with a beautiful white cumulus, the latter has marvellous vigour of growth, and, speedily climbing the loftiest pillar, proceeds to scramble along any support which presents itself. The pretty little evergreen, yellow-flowered Banksian still enjoys a certain measure of favour, but for the rest—finis! Céline Forestier and Maiden's Blush, Boursault Amadis and Blairii No. 2, Fortune's Yellow and Persian Yellow—these and many other once-popular roses are gone. They served in their day, and because there is something of sentiment —of early loves and youthful illusions—associated with them, we give them one kind thought before we part with them for ever.

The Crimson, Pink (Euphrosyne), White (Thalia), Yellow (Aglaia), and Blush Ramblers, Dorothy Perkins, Lady Gay, Hiawatha, the Paradise Rambler, Carmine Pillar, Mrs. Flight, Ards Rover, the Penzance Briers, and Longworth Rambler are the pillar, arch, and pergola roses of to-day. Of course, Crimson Rambler heads the list; equally of course, Dorothy Perkins comes second; equally of course, Carmine Pillar comes third. These form our great trinity; these are the three graces of our pleasaunce. We take them first, and add others as our space permits. Carmine Pillar will bloom in June, and then pass; Crimson Rambler will bloom in July and August, and pass; Dorothy Perkins will bloom in July and August, but will not pass; she will bloom on and on until the autumn. Ought we not, after all, to put her at the head of our list? Should she not take precedence

Crimson Rambler Rose growing over an old tree in Mr. A. C. Leney's Garden, Saltwood, Hythe.

even of Crimson Rambler? This is a question for debate, but for calm debate; there must be no acrimony in the rose garden.

Where, pray, lies the much-vaunted superiority of Lady Gay over Dorothy Perkins? A little deeper tinge of colour, some say. It is not always discernible if ever; and even if it were, what matter? The colour of Dorothy Perkins is a lovely shade of pink; we do not want it deeper. We can do, of course, with a rose as good as Dorothy Perkins which has deeper-coloured flowers, but we shall not turn Dorothy Perkins out to make room for it.

There are, too, the wichuraianas, so often, and rightly, recommended for banks, but also good for pillars. We ought to feel that we owe a special debt of gratitude to the wichuraianas, because they are not only beautiful and valuable in themselves, with their strong stems, lustrous leaves, beautiful flowers, and accommodating nature, but in union with other kinds they have given us some of our best sorts. Dorothy Perkins and the Paradise Rambler are two of wichuraiana blood. Many people know nothing of the wichuraiana rose. The name has a strange, unfamiliar, almost uncanny, sound. The wichuraiana is a rose from Japan, improved in America, and now represented by several varieties, both single and double, and of different colours. The type is white flowered, but the crimson (rubra) is better. The plants grow with the utmost vigour, forming thickets of strong stems. They keep on growing well into the autumn, and the new wood flowers as it grows, so that the plants are nearly always in bloom. The stems are ruddy, and the leaves highly polished. One plant, put out in good soil, will speedily clothe a large bank. Decidedly we

must give due thought to the wichuraianas. If a standard rose with a weeping head is wanted, let the first choice be Dorothy Perkins, and the second wichuraiana rubra. An old rose called Charles Lawson was used a good deal for this purpose in years gone by, but it will never be used again by any one who has seen the two varieties just named.

We consider supports in the chapter on Climbers (Chapter VII.), and see that larch and oak, with the base tarred, creosoted, or charred, could be used. One can often buy short, twisted pieces of oak, suitable for the upper part of arches, in country nurseries, or at woodyards. In the case of pillars we can use single poles, or, if material is abundant, set three or four in a group. Pergola-formation is discussed in the climber chapter.

We must do our pillar roses well, and the first step is to provide deeply-dug, heavily-manured soil. The ground ought to be broken up to double the depth of a full-sized spade, and a thick coat of manure spread between the two layers. If there is chalk near the surface it might be broken up, and some of it removed to allow of space for manure and (if available) turves. This greatly increases the labour, but it is almost a necessity, for roses will not thrive in shallow soil overlying chalk. Heavy loams are the best, but lighter soils can be made to answer if they are well deepened and manured, and if a mulching of manure is spread over the surface after the planting is done. It is desirable to plant in November, but spring planting will do on stiff, cool "holding" soils. It is not safe on light and dry ones.

The pruning of pillar roses is a totally different business from the pruning of dwarfs grown for exhibition.

Experts appear to differ as to whether it is advisable to cut the canes hard back soon after the planting in spring or to leave them intact. Some growers prune the canes almost to the ground, and this is certainly a safe course to adopt, because it is followed by vigorous new canes. The drawback is that it loses a year's flowering, unless rich soil and a very favourable season push the plants along, and encourage them to form strong canes in a few weeks, in which case there may be late flowers. Other growers merely remove the dead or unripe portions of the canes, and leave the sound, mature parts. The question is partly one of soil. In light, shallow land it is certainly wise to prune back after planting, even if flowers are sacrificed for a year, as the plants will be the better for it in after years. In rich, cool, heavy soil it is not necessary.

When the plants are well established annual pruning back, such as the dwarfs get, must be avoided, because the flowers come on short side shoots pushing from the canes made in a previous year. To get plenty of flowers we need a supply of strong, well-ripened canes. These may be one year or several years old, but it is to be noted that when the canes get very old and bark-bound they do not flower so well as younger ones, and a little thinning out becomes advisable. The advice often given to strictly avoid pruning Crimson Rambler should be qualified by this consideration. Carmine Pillar, the various ramblers, indeed all roses which make long canes, should be pruned occasionally, but it should principally consist of thinning out superfluous canes. There must never be a general cutting back. In the case of a very free-growing rose like Félicité Perpétue, a great deal of thinning will be necessary, or it will become a thick tangle of shoots.

Strong cord will be needed to fasten the main canes to the pillars, as ordinary tying material is soon chafed through. The outer canes may be lightly looped to the central ones, and it is a good plan to shorten one or two of them to half their length, in order to insure a plentiful supply of flowers near the ground, and so get a column or pyramid of bloom from the base to the summit. The Penzance briers and Félicité Perpétue respond well to this treatment, but it is not so suitable for Carmine Pillar, and other varieties, which make fewer, but stronger, canes. March is the month for pruning.

Bedding Roses

We want, for our principal beds, varieties which are vigorous, healthy growers, free bloomers, and of clear, decided colours. Never mind if the flowers are intrinsically imperfect from the exhibitor's point of view. That is not the point at issue. There are surprisingly few which answer to our requirements. Most varieties are either quite weak growers, or else decided ramblers, and we do not want either. Our need is for sorts which form natural bushes, growing vigorously without throwing up long canes. Grüss an Teplitz is such a rose, perhaps the best of the class. It grows rapidly, soon forming a bush as large as a red currant, and flowering in bunches all through the summer. Betty Uprichard, Lady Pirrie, Los Angeles, Ophelia, Golden Emblem, Madame Abel Chatenay, Caroline Testout, Mrs. Henry Morse and Mrs. Wemyss Quinn are all suitable, and many are recent introductions. All these are worthy of beds to themselves. They do not need hard pruning, except for the season of planting, when they may be cut to the ground. Afterwards the less shortening they have the better.

If several beds are to be devoted to mixed varieties

let the proportion of tea-scented and hybrid tea varieties be much greater than that of hybrid perpetuals, because in the main they are better garden plants. To begin with, the warm colours of the young wood in spring are almost as rich and grateful as those of pæonies. Then they flower more continuously than the "perpetuals," which are woefully misnamed. Perhaps they are more tender, but all dwarf roses are liable to be cut in very hard weather, and it is well to protect them by drawing earth up in winter, cutting away any injured top growth when the time for spring pruning comes. All weakly-growing roses are the better for hard pruning, in fact they are best cut to the ground every spring, leaving only short stumps with three or four buds on each.

Wall Roses

Good pillar roses are not necessarily good wall roses; they are often bad ones. Generally speaking, roses which form long, upright canes, with very few strong laterals, bearing their flowers on short side stubs, are unsuitable for walls. The typical wall rose is that which readily pushes a fan of side branches, like dear old Gloire de Dijon, Wm. Allen Richardson, and Maréchal Niel. Crimson Rambler is by no means a model wall rose, nor is Dorothy Perkins. Carmine Pillar is far from being suitable. On the whole, we have not advanced in wall as rapidly as we have in pillar roses. Bardou Job is one of the best of the newer sorts, but it is better for a low than a high wall, and this remark applies equally to Alister Stella Gray and Homère. Aimée Vibert and Bouquet d'Or are fair wall roses; and these, too, belong to the old brigade.

So far as habit is concerned, we have no better

wall rose than Maréchal Niel; but, unfortunately, it is not hardy enough for outdoor culture in most parts of Great Britain, and must therefore be grown under glass. Next to it comes Gloire de Dijon, and this old favourite must still be planted. Reine Marie Henriette makes a very good companion to it, although it does not push laterals quite so freely. The pruning of wall roses should mainly consist of cutting out old or crowded laterals, and fastening in young ones in their places. A limited number of strong flowering shoots, trained in clear of each other, will give better results than a crowded mass of weak ones.

The comparative dryness and poverty of soil under walls militate against the success of roses, and in planting the first thing should be to thoroughly enrich the ground with manure, digging deeply. If the soil is very poor, decayed turves as well as manure ought to be provided. Soakings of water and liquid manure will also help.

Selections of Roses

For bedding

*Betty Uprichard.
*Caroline Testout.
*Frau Karl Druschki.
*Grüss an Teplitz.
Los Angeles.
Ophelia.
*Madame Abel Chatenay.
Mrs. John Laing.
*Mme. Edouard Herriot.
K. of K.
Mrs. Wemyss Quinn.
Emma Wright.

**Choose for six.*

For walls.

Bennett's Seedling. } north.
Gloire de Dijon. }
Félicité Perpétue. }

Longworth Rambler. } south and west.
Reine Marie Henriette. }
Madame Alfred Carrière. }

Wm. Allen Richardson. } east.
Madame Alfred Carrière. }

For arches, pillars, and pergolas.

Ards Rover.
Bennett's Seedling.

Blush Rambler.
*Carmine Pillar.
*Crimson Rambler.
*Dorothy Perkins.
*Félicité Perpétue.
*Hiawatha.
Longworth Rambler.
Paradise Rambler.
*Pink Rambler (Euphrosyne).
Reine Olga de Würtemburg.
Tea Rambler.
The Garland.

**Choose for six.*

For banks.

Wichuraiana.
" Alberic Barbier.
" Jersey Beauty.

Penzance Briers.

Lucy Bertram.
Lucy Ashton.
Meg Merrilies.
Rose Bradwardine.

General Garden Roses for Beds

Admiral Ward.
Bessie Chaplin.
Betty Uprichard.
Caroline Testout.
Earl Haig.
Emma Wright.
Frau Karl Druschki.
Général Jacqueminot.
Golden Emblem.
Grüss an Teplitz.
Hugh Dickson.
J. B. Clark.
La France.
Los Angeles.
Mabel Morse.
Madame Abel Chatenay.
Madame Ravary.
Molly Sharman Crawford.
Mélanie Soupert.
Mrs. E. G. Hill.
Mrs. Henry Bowles.
Mrs. John Laing.
Rev. F. Page Roberts.
White Maman Cochet.

If it is desired to fill considerable areas of ground inexpensively, the Japanese rose, rosa rugosa, may be planted. It forms immense bushes, and while its flowers are by no means wanting in beauty it is chiefly ornamental on account of its splendid hips. There are several varieties of this useful plant, and three of the best are Blanc Double de Coubert, Conrad F. Meyer, and Madame Georges Bruant.

How to Bud Roses

Buy and plant briers in autumn. After a shower towards the end of July, or in the early part of August,

make a T-shaped cut through the bark of the side shoots, close to the main stem, and raise the edges of the bark gently. Slip in a bud which has been sliced from a young growing shoot in the form of a shield about an inch long, and of which the pith has been removed, and tie in with worsted. The bud must be kept moist, or it will not grow. The beginner should always try and get a practical lesson in budding from an expert, as it is an operation very difficult to make clear in words.

Our short rose chapter teaches us that there are roses for almost every garden purpose, and we see that to look upon the rose merely as a show-tent flower is to trifle with one of the most precious of floral gifts. In working towards the ideal of a beautiful garden, we want all the help that our best plants can give, and the rose stretches out both hands, laden with good things. It is a great and generous helper, and we must go half-way to meet it, with gratitude in our hearts that so much beauty is at our service.

CHAPTER V

PICTURE BEDS

A FLOWER lover who has seen a group of rhododendrons in full beauty on the outskirts of a lawn does not need to be told that a "picture bed" is no mere flight of imagination, but a great reality. Brilliant flowers and green sward blend. The grassy approach to the bed, soft, smooth, and verdant, tunes the mind to sweet thoughts of garden charm and beauty; and the flowers seem to gain in richness from the association. The one drawback to the rhododendron collection at Kew, so admirable in the quality of the varieties, and in the cultivation of the plants, is that it must be inspected from the close contiguity of a gravel walk. One wants to be constantly stepping back, in order to view the shrubs from a greater distance; and sighs, though perhaps half unconsciously, for a broad intervening band of turf.

Grass is matchless as a foil for flowers, and wherever sward is carried right to the edge of the soil colour effect is enhanced. A broad herbaceous border on the farther margin of a lawn, and partially encircling it, may give beautiful effects. In its absence it were better to sacrifice a few slices of turf for special beds than lose the rich charm of distant colour.

It is somewhat singular that the lesson which the rhododendrons teach has not been carried further.

These noble plants only do, often at considerable expenditure of labour and money, what can be done simply and inexpensively with less exacting plants. Has any reader tried a large lawn bed of sweet peas, for example? Has he seen them arranged in clumps three or four feet through, and rising to a height of eight or nine feet—a light, fleecy, glittering medley of fluttering flowers, green foliage, and slender tendrils? Conceive of such a bed. Think of the gay butterfly throng of flowers, from purest white to cream, buff, pink, rose, orange, scarlet, crimson, magenta, and purple—from pearl to French grey, blue of many shades, indigo and violet.

In June the butterfly clans are gathering. They have heard the pibroch of the mating birds, and they have come, like the latter, on the wing. In July they are massed in all their brilliant panoply. The gatherer plies the scissors, but they smile upon the steel, and spring hydra-headed. The army of July melts away, but lo! another grows almost in a night, and August is greeted by ranks as thick, as merry, as those of July. The roses wane, the dahlias rise, and in September the latter fight hard for garden dominion; but new hosts of sweet peas come, and dispute the crown. Even in October they remain unsubdued, except by frost.

In these five months an ever-varying, but ever-beautiful, picture has unfolded itself before the delighted eyes of the grower. He has seen new phases every day. Sometimes he has gone forth in the soft lights of the dawn, when the first shadows begin to creep about the garden, and the flowers sway in tender humility under the influence of the morning breezes. He has studied the plants in the fierce heat of noontide, when the blossoms have given back blow for blow to the hot sun-

rays. And he has wandered among them in the evening coolness and stillness, when they have drooped heads that are weary from the long, hot battle of the day, but still are full of beauty and sweetness. And during all the long weeks of summer his vases have been full, and he has sent visitors away laden.

The cost of it all, excluding labour, has been a few shillings—perhaps ten shillings for manure, and a few shillings for seed.

There are other annuals besides sweet peas, less valuable, on the whole, but still rich with the possibilities of good service. And there are cheap perennials—snapdragons, Indian pinks, Michaelmas daisies, chrysanthemums—which come with cheerful rapidity from seed, division, or cuttings; plants that increase rapidly, and give fine blocks of colour. There are, too, tuberous begonias, ivy-leaved geraniums, and wichuraiana roses for ground covering.

Picture beds must be full of the saving grace of informality. There has grown up round the very name "flower-bed" an atmosphere of stiffness, an association of crinolines. We think of them almost as we think of high stocks—even of stomachers, periwigs, and knee breeches. To have "borders" is to be modern, to have "beds" is to be ancient. Bedding out of the old kind is not dead. It is as lively as the memory of Beau Brummell and D'Orsay. It has its votaries, and it may be left to them, as the memory of Blair Athol and Hermit may be left to old sportsmen. For ourselves, we prefer a new order.

We will have pillars in our beds, just as we have them in our borders, and we will cover them with roses, clematises, and other favourite flowers. Around them we will group special plants, such as delphiniums, lilies,

foxgloves, hollyhocks, evening primroses, torch lilies, irises, and daffodils. We will have colour blocks of tulips, pæonies, gladioli, and other brilliant flowers, set in a dark background of swarthy or bronzy evergreens. In all this grouping, what we learn in the chapters on Colour and Climbers will help us considerably. We will have isolated standards of selected roses, with Dorothy Perkins and wichuraiana rubra as our principal sorts, owing to their freedom of flowering and grace of habit. These features will give unevenness of outline, looseness, informality. There will be abundance of colour, but no sense of "packing."

By a liberal use of annuals, or plants which yield readily to treatment as such, we may have beautiful picture beds at an absurdly small cost, because the plants can be raised from seed, the hardy annuals out of doors in April, the others under glass in February or March, and planted in May after being hardened.

In addition to sweet peas, there are many summer and autumn blooming plants which, in beauty and duration, are as valuable as many perennials. Bartonia aurea makes a bright mass of yellow. The clarkias, particularly the double variety of elegans, only need thin culture to shine brilliantly for several weeks. Godetias are as showy as pæonies, will stand any heat, and retain their freshness throughout the summer if given room to branch. The lightest annual asters, such as the ostrich plume, are both light and graceful. The salpiglossis has a beauty and character of its own. It possesses colours rarely seen in a garden plant—the hues seen on old metal worked by artificers like Benvenuto Cellini. It has exquisite shadings and venations—subdued, even sombre tints, suddenly breaking into sparkles of gold.

The newer species of tobacco plant (*nicotiana*), such as *sylvestris* and *Sanderæ*, give very useful material. The former is a valuable plant, growing four to five feet high, and having large spikes of white flowers. The colours of *Sanderæ* vary, and some of these are unpleasing, particularly the magenta, but there are bright rose forms which are well worth having. The habit of the plant is loose, and it flowers freely. It luxuriates in a clay soil. The older white tobacco, *alba* or *affinis*, is useful too.

The nasturtiums (*tropæolums*) may be used with excellent effect. Varieties of *tropæolum lobbianum*, which are mostly deep orange or scarlet in colour, also the yellow polyphyllum, may be used to ramble over logs. There are, too, various American and continental hybrids available, which have pretty foliage as well as bright flowers. The ordinary "Tom Thumb" varieties are somewhat stiffer in habit, but they make useful "blobs" of colour, and are certainly not to be despised, especially in dry, poor soils.

Poppies, as we have seen in a previous chapter, are capable of doing brilliant work. The singles, such as the Shirley, are very dazzling and varied, but they are short-lived flowers, and the large doubles are more lasting.

The Rose Mallow (*lavatera trimestris*) and its white variety are somewhat straggling growers, but they are of undoubted value. The former is of a beautiful shade of rosy pink, blooms freely, and lasts until sharp frost comes. A clump of two or three well-grown plants will give a brilliant touch of colour.

The Sunflowers (*helianthus*) include one or two good annuals, notably the cucumber-leaved (*cucumerifolius*) and its varieties. The common species (*annuus*), as repre-

sented by varieties such as Munstead Primrose and Primrose Dame, is worthy of attention.

The annual chrysanthemums include two very bright forms of *segetum* called respectively Morning Star and Evening Star, both shades of yellow, bright, cheerful, and free-blooming.

Kochia scoparia has pretty, pale green, fern-like foliage, which turns crimson in late autumn.

The annual lupins include some good plants, notably *lupinus Hartwegii*, blue and white, and *lupinus subcarnosus*, violet with white centre. These are vigorous and handsome, although they are not so well known as the common blue, rose, and white lupins.

There is a good annual sage in the variety *salvia horminum*, Blue Beard, and if not equal to the better known species *patens* in richness of colour, it is a distinct and useful plant.

A patch of the scarlet flax, *linum grandiflorum rubrum*, gives a bright bit of colour, and we get pink and rose with low growth in *saponaria calabrica* and *silene pendula compacta*. Marigolds are old favourites, and if the richly-coloured Africans are a little garish, they are undeniably bright. Of *zinnias*, the doubles are much superior to the singles, and there are few annuals more vivid.

We get blue in plants of low stature from corn-flowers, *phacelia campanularia*, the dwarf *convolvulus minor splendens*, Love-in-a-mist (*nigella damascena*), *nemophila insignis*, and *lupinus nanus*, all of which can be sown out of doors.

Ten-week stocks must not be forgotten; the singles are worthless, but good doubles make beautiful clumps. One cannot, of course, rely on getting a majority of doubles, but in practice one does, as a rule, get seventy per cent. or even more, from good seedsmen.

There is a blue annual pea sold by seedsmen—a pretty plant about two feet high, of neat habit, and very free in bloom. It makes a capital plant for large beds. It is called by seedsmen Lord Anson's pea, but that is an error. It is *lathyrus sativus*. Lord Anson's pea is a rare plant.

The varieties of *cosmos bipinnatus*, ranging in colour from white to purple, and growing three or four feet high, are serviceable.

We can add perfume to our beds by supplementing the sweet peas and stocks with mignonette, night scented stock (*mathiola bicornis*), Sweet Sultans, and *scabious*.

So far as our main purpose—Colour effect—is concerned, it must be sought in careful restraint. The plants must be in separate groups, each of which is made up of isolated units, not tangled masses. The great danger with all plants raised from seed sown out of doors is that they are grown too thickly; this means weakly growth and a very brief period of flowering. If the various kinds are seeded thickly they are likely to grow into each other, and then, even for the short time that they remain in bloom, they do not produce the effect that is sought. Transplanted half-hardy annuals raised under glass, such as stocks, asters, *phlox drummondii*, and *zinnias* are generally relatively better than the hardy class, because they are set out separately.

Seedsmen give the heights and colours of the various plants they sell on the packets, together with advice as to sowing. Several of the best half-hardy kinds, such as asters, phloxes, tobaccos, petunias, and salpiglossis, will give profuse summer and autumn bloom if sown in unheated frames in April, pricked off from the seed-pans into boxes, and planted out in June. This gives

the late tulips plenty of time. Every flower lover should have a few boxes of such beautiful things as these, also of snapdragons and verbenas (raised earlier, however), because then the places of bulbs which have gone out of bloom, likewise any gaps in beds and borders, can be immediately filled. The cost is very small.

CHAPTER VI

THE WATER LILY POOL

THE heat haze quivers above the water lily pool, and the gnats dance around it. The morning has been dull, but the sun has broken through, and now the sky is a sheet of blue flecked with white, like a carpet of forget-me-nots patched with rock cress. The rose sprays on the adjacent pillars swing idly to and fro, their shadows playing with the water.

During the hours when the clouds hung in a lowering mass certain green and brown cones, of about the size of bantam's eggs, nestled amid the floating lily leaves, half submerged. As young growing birds, rising gradually in the nest, like a moored vessel rising on the tide by the quay side, presently overhang the edges of their home, so these shapes, coming up from the cool deeps, partly showed their glistening bodies above the surface. But they lingered shyly, uncertain and fearful. They came from a dim underworld of cool slime, where there was good hiding, into a world of light, where all the shelter they could find was a thick, stiff, unyielding leaf, which offered no motherly protecting wing. And it was not a warm, cheerful world. The sky was overcast, the air was chill. There was a note of brooding on nature. It was no time or place for careful maids to come forth in summer attire. Lightning might flash, thunder roll, and great, rude, stinging, penetrating raindrops come pelting down.

The buds (the cones were, of course, lily buds) hung within the water, and showed no signs of opening. The forces within them seemed to have become passive. A little while previously something had formed a tiny stem with a small knot on the top of it, and the stem had lengthened until it was more than two feet long, and the knot had thickened until it was as large as a dove's egg, and so daylight was reached. But the force appeared to have expended itself, leaving the buds lumps of sterility. Anyway, they snugged against the leaves without a sign of life, although swayed into motion at times under the recurring pressure of the lapping water.

The sun set the machinery in motion again. When the orb fairly got through the clouds it burnt strongly. It began to suck up moisture from the pool, and make warm vapour of it. It drew the chill out of the water, and left it almost tepid. The flaccid stems stiffened, the buds became virile.

The cones did not open all at once. The first to venture showed a seam of pink—a thin, red line—so faint that it was hardly perceptible for a long time, but which presently became broader and brighter. Then another cone opened a shy, inquiring eye of blue ever so little, as though it dared do no more than peep. But the eye did not close; it opened wider and wider, perhaps in wondering curiosity at the richer blue of the sky above it. Later still an adorable stain of yellow appeared on another bud's breast. Decidedly things were moving.

By the middle of the afternoon the pool was transformed, and an alluring picture spread itself before the watcher's eyes. A star of azure loveliness had spread itself on the cool surface of the water, and smiled up at the bluer vault above. A brilliant rose flower, as rich,

yet delicate, in colouring as an orchid, expanded. Soft cushions of pearly white toyed with the ripples. The furtive, sombre buds, lurking dubiously on the threshold of a new world, had unfolded, at first by slow and cautious stages, alarmed at every passing cloud; but later, doubts and fears forgotten, in eager haste. The pool was full of the exquisite blossoms of blue, primrose, crimson, and white.

Diogenes, asked by Alexander what service the conqueror could render him, replied that he could stand out of the sunshine. Our water lily is impatient of anything that comes between itself and the sun. It does not like to be overhung by trees. And sunlight, so requisite for the development of the flowers, is needed to give that exquisite play of light and shade which is one of the great charms of the water garden. Gently swayed by the wind, the slender green stems of the intermingling sedges curtsey to the broad, round lily leaves that lie flat and still on the surface. Ripples of sunlight and shadow chase each other over the thick, succulent plaques. The water, when in gentle motion, laps round them with an almost imperceptible gurgle. When the ceaseless flicker of ever-varying light plays hide and seek along the water; when, coyly peeping from among the rushes, the matchless flowers of the lilies sparkle against the soft green stems; when the swinging sprays of the neighbouring climbers throw their shadows over the water, the lily pool presents its strongest appeal. It becomes one of those features of the garden which have a constant and endearing influence. Thither, in the evening, one takes one's books. It becomes a garden ingle-nook.

In large gardens the lily pool may expand into a pond or lake, and then we can not only provide flowers

for the water, but for the margins also. What more glorious plant is there among the whole range of hardy plants than the Japanese iris, known to botanists as *lævigata*, and to many florists as *Kæmpferi?* To see this wonderful plant in all its beauty, visit the lakeside at Kew towards the end of rhododendron time, or go to the gardens of the Royal Horticultural Society at Wisley, near Ripley, Surrey. There is nothing among sub-aquatic plants to compare with it for size of bloom, vigour of growth, and richness of colour. When the plants find a position quite to their liking, the flowers are nearly as large as dinner plates. They have not the "standards" and "falls" (upright and drooping segments) of the Flag irises, but are flat, or slightly recurved. Some of them are blue, or blue with white centre; others white, or white veined with violet; others, again, combinations of blue, gold, and white. A colony of them glowing in the sunshine on a June morning, with the sparkle of water about them, is a sight to be remembered.

The common Water Flag (*iris pseudacorus*), with its cheerful yellow flowers, is a waterside plant which must not be despised. It has not the stately, painted beauty of the Japanese, but it is bright and gay. The Marsh Marigold (*caltha palustris*), the Grass of Parnassus (*parnassia palustris*), the Reed Mace (*typha latifolia*), the Japanese Primrose (*primula japonica*), with its whorls of crimson flowers, the Marsh Trefoil or Bog Bean (*menyanthes trifoliata*), the Water Hawthorn (*aponogeton distachyon*), the Flowering Rush (*butomus umbellatus*), the Arrow Head (*sagittaria*), and the Water Violet (*hottonia palustris*), not suitable for deep water, are all charming waterside plants.

What, however, of our water lilies proper? for we

are putting the dessert before the *entrées*. There is certainly nothing among the sub-aquatics, except it be the Japanese iris, that can vie with the nymphæa in interest and beauty. True, it opens shyly, as we have seen; true, it closes at sunset; but in its hour it is matchless. It was named, of course, from the nymphæ, the female deities of ancient Greek mythology. The sea-nymphs were nereides, the river-nymphs naiades, but our beautiful aquatics know other divisions, such as hardy and tender, species, hybrids, and varieties. There is one British nymphæa—*alba*. It is a beautiful plant, and will grow in deep water, which is not good for many of the exotic kinds, but it is scentless. There are several varieties of it, and one—candidissima—is much superior to the parent.

The scented water lily (*nymphæa odorata*), white, tinted with red, is a glorious aquatic. There is a small form of it, named minor, which is suitable for tubs. Then there is the pretty, white, June-flowering species *pygmæa*, or *tetragona*, of which there is an exquisite yellow variety called *helveola*. *Tuberosa* is a July bloomer, white; and it has yellow and rose varieties, as well as a double. Both odorata and pygmæa helveola are extensively grown, but the hardy hybrids are the most popular. They are a large and beautiful band. Two of the sections are associated with the names of famous raisers — Laydeker and Latour-Marliac — the latter being called *marliacea*. Ellisiana, red; James Brydon, rosy red; Laydekeri fulgens, amaranth; marliacea carnea, pink; marliacea chromatella, yellow; odorata sulphurea, yellow; and William Doogue, red, are all charming hardy water lilies, and, with *odorata*, will make a splendid selection.

These hybrids do not need—in fact are not suited

for—deep water. The ponds where the finest private collections are grown are shallow, and perhaps the average depth of water is not more than two and a half feet. This will be a relief to the pool-maker, who has to make a beginning from a plain stretch of earth, and is not over-comfortable about the water supply. It teaches him that the cost of excavating is likely to be much less than he had expected, and, consequently, that he will have a little more money to spare for plants. Let us consider a few practical questions.

First, what shall be the size of our pool? Perhaps the flower lover will try and decide how many plants he would like, and then allow each one square yard. Thus, if he proposes to grow a collection of a dozen, he must have a pool with an area of a dozen square yards. That is one point settled.

Secondly, what shall be the depth of the pit? Four feet will do nicely. It will allow a few inches for puddling, a few inches for soil, and still nearly three feet for the plants. The sides should slope at an angle of about 30°.

Thirdly, how shall we make the pool water-tight? We may proceed by puddling—that is, plastering with wet clay. The latter must be pure, and such as will beat into a plastic mass when wet. To make a thorough "dough" of it, chop it up into small pieces with a sharp spade, and then, while it is moist, beat it well and spread it in about six inches thick. Afterwards let the heaviest workman go in barefooted and tread it evenly down. Six inches in depth of good turfy loam for planting in may finish this part of the work. For the sides, puddle similarly, beginning at the bottom, and working upwards. As the burly workman cannot operate effectually on the sides with his bare feet, let him beat the clay well down

with a spade. Carry the clay a few inches above the water line.

A lining of concrete is not very expensive, and may well be resorted to in districts where clay is scarce, or labour for applying it is not available. A local builder will always give an estimate for making and concreting a pool, and it should include the removal of the excavated soil to the point where it is to be finally deposited, so that the whole job may be finished off. A couple of handy navvies, such as a builder will employ, will do the work of excavating and concreting more expeditiously than ordinary garden hands.

Fourthly, where shall we get our water supply? If the pool is made at the lower part of the garden, the surface water can be taken into it by means of drains. There are thousands of gardens in which the surface water all runs to waste in ditches. In other cases roof water is taken by a pipe to the earth, and there allowed to soak away. By opening a trench and laying in an earthenware drain-pipe, this water is trapped, and may be conveyed wherever it is wanted. If using roof water, it will be economical to have the pool fairly near the house, thus saving labour in trench-cutting and expense in piping. When once the pool is filled with water the case is won, because what slight wastage there is is made up for by every rainfall. If the pool is small in proportion to the bulk of water available, it will be well to provide for an overflow.

Fifthly, when and how shall we plant? Spring is the best period for planting water lilies — say, from mid-April to the end of May. If loam has been laid in the bottom, the roots can be planted in that, and a few small pieces of rock can be placed round each clump to help to keep it in position. The stones will

form pockets, as it were. Smaller plants can be established on the sides of the pool if a few stones are cemented to the sides, forming saucers. When planting in deep water, one of two devices may be resorted to. The first is to bind the roots of each water lily round with pieces of turf, form a loop in the cord, and then lower the mass to the bottom by passing the end of a long pole through the loop; attach a heavy stone, if necessary, to cause the mass to sink. The second plan is to place each water lily, with soil, in an old basket and lower that to the bottom.

If means permit of the extension of the pool into a pond, the circular form may be departed from. We may have an irregular oval with a waved edge, perhaps a central island or two, and narrowed extremities, over which a rustic bridge may be carried. On broad bands of turf around the pond clumps of bamboos, giant palm-leaved rhubarb (*rheum palmatum*), and other handsome foliage plants can be formed. With Japanese irises on the margin, a beautiful addition will be made to the garden.

The grower's success may be such that in the course of a few years the pool becomes crowded through the luxuriant growth of the plants. Then there comes a slimy, splashy, but (especially for the younger generation) most delightful task of overhauling. The water is drawn off, and the clumps are removed. The latter are divided, one or two crowns being retained with each portion; and then, after an inspection and possible rearrangement of the stones, replanting is done.

Should the admirer of water lilies visit a large show, he will very likely see that an ingenious florist has made a small, narrow tank, and established some water lilies in it, just by way of showing that not only a lake, but

even a little round pool, can be dispensed with. Certainly water lilies can be grown in tanks. If a person cares to form a brick pit, and line it with cement to make it watertight, he can grow nymphæas in it with very little trouble. And he can grow some of the tender kinds, such as gigantea, lotus devoniensis, stellata, and Wm. Stone, if he cares to go to the expense of covering his tank with glass and running a hot-water pipe round it—transforming it into what gardeners term a heated pit.

And there is an even simpler way of growing lilies—it is to cultivate them in tubs. In an old garden the writer once formed a little dell. In the centre he sank paraffin-oil casks which had been sawn in halves, and charred with lit shavings. Water lilies were planted in the tubs, and moisture-loving plants placed around them. The banks were planted with forget-me-nots, anemones, grape hyacinths, tulips, Spanish irises, daffodils, and other bright flowers. The dell was a very cheerful spot, especially in spring and early summer.

When lilies are grown in tubs, it will be necessary to replenish the water supply frequently in hot, summer weather. And it will be wise to throw some loose litter over them during sharp frosts, for the roots will not be far from the surface, and would certainly not be improved by being frozen hard.

The smallest garden, then, may have its water-nymphs. They will laugh in the summer sunshine, and make glad the grower's heart.

CHAPTER VII

BEAUTY OF CLIMBERS AND CREEPERS

THE very word "climber" conjures up alluring pictures of garden charm. It may be midwinter when we read or write of it, but there comes before us fair visions of summer beauty—roses tossing their flower-laden shoots in the breeze, clematises clothing gateways, honeysuckles rambling over hedges, wistarias swinging their great mauve clusters about the windows. We see arches and pillars clad in a golden, green, and crimson garment of foliage and bloom. Pergolas stretch their long, cool, perfumed lengths before us. Sweetest thought of all, the climbers bring the garden nearer to the home. There may be a certain sense of detachment with some classes of plants; they are a little distant, a little stiff. We feel that although we know them they are hardly a part of ourselves. The climbers and creepers fling their tendrils all about us, they find crevices in our natures, and take intimate possession of us. They throw out soft, tender twiners that coil themselves imperceptibly around our hearts.

We clothe the walls of our houses with climbers and creepers, and so bring the plants very near to ourselves. They seem to form a part of our home life. They tap at our windows of a morning, reminding us that the birds are awake and in full song, and that we are losing precious moments of life. They soothe us with delicious odours in the cool evening hours.

On the grey, lichen-stained stones of old pillars the blue clematis gives its most beautiful effects. Tall columns of foxglove or delphinium may rise near, with evening primroses, white lilies, and torch lilies at their feet. Simple colour groups like these make exquisite garden pictures. Grey-brown larch pillars in the mixed border, splashed over with the brilliant flowers of Carmine Pillar and other roses, form backgrounds for lofty spires of hollyhock, around which are grouped pæonies, irises, garden chrysanthemums, or other selected flowers.

The modern flower-garden must be rich in flower studies in which climbers and creepers play a prominent part. We must not think of them as adjuncts, but as integral parts. They must come into our earliest schemes, and not be introduced as mere afterthoughts. Whatever its plan may be, a garden can never appear formal if rambling plants are employed freely on stumps, pillars, arches, and pergolas. They rise triumphant over uniformity, and give that air of brightness and grace which adds so greatly to the charm of a garden.

Queen of this, as of all other classes of garden flowers, the rose is given a chapter to herself. Carmine Pillar, Longworth Rambler, Hiawatha, the Blush, White, Yellow, Pink, and Crimson Ramblers, Bardou Job, the Penzance Briers, and all the rest of the sweet sisterhood of rosedom, there receive the attention which they so well deserve.

The clematis may perhaps come next. Vigorous in growth, with large flowers brilliantly painted, it is a glorious plant. The little white Mountain clematis (*montana*) is very pretty for a house wall, and does not object to an easterly aspect; it is beautiful, too, for rambling over a dead tree, which it will clothe in a sheet of snowy blossom in June. Growing quickly from

cuttings, and thriving on heavy soil, it is a most useful plant. The Traveller's Joy or Old Man's Beard (*vitalba*) is a wilding, and one of the most attractive when, in late September, its white, fluffy masses coat the thorns and sloes in the hedgerows.

It is among the florists' clematises, however, that we find the finest material. There we find Jackman's and other lovely forms. Botanists throw them into groups, as (1) coccinea, (2) florida, (3) Jackmanii, (4) lanuginosa, (5) patens, (6) viticella. For garden purposes grouping is only important as far as it affects pruning, and (omitting the coccinea class as the least important) we will throw all our varieties into two sets—(1) those which require to be pruned hard every year, and (2) those which only need thinning out when crowded, or trimmed when straggly.

Clematises which need hard pruning.

Jackmanii, violet blue.
Madame Edouard André, red.
Lady Bovill, pale blue.

Clematises which only need thinning or trimming.

Duchess of Edinburgh, double white.
Fair Rosamond, blush.
Lady Londesborough, silver.
Lord Londesborough, mauve.
Miss Bateman, white.
The Queen, lavender.

Planters can pick from these according to the colours which they like best, but they ought to try and find room for Jackmanii, Madame Edouard André, and the Queen.

It is common for Jackmanii lovers to complain that they cannot get the plant to start. It dies off, they say, instead of growing. Nine times out of ten this is because they plant late in spring in a hot, dry position,

and do not cut back. It ought to be planted by the end of March, in deeply-trenched, manured soil, and directly it is put in it ought to be cut close to the ground. A plant rarely fails when treated in this apparently barbarous way.

Honeysuckles are less brilliant than clematises, and in the main are sober, inconspicuous flowers; but they are rightly loved for their delicious perfume, and we must not forget the bright fruits of some. Their botanical names are a little trying. Thus, our delicious old wilding the woodbine is *lonicera periclymenum*, and two of the best honeysuckles that we have are respectively *lonicera japonica aureo-reticulata* and *lonicera japonica flexuosa*. The former is the pretty variety with golden-netted leaves, and the latter (one of the sweetest and best) is the plant listed by the nurseryman as *flexuosa* or *brachypoda*. The scarlet trumpet honeysuckle of the florists is *lonicera sempervirens*. The sweet white winter honeysuckle is *lonicera fragrantissima*. We can only tolerate such names as these when we realise that they are necessary for purposes of distinction. Of course, we can write to our nurseryman and order "a honeysuckle"—just that and no more; but the odds are that we shall not get out of it so easily, for he will very likely write back, and, hurling fearful names at us, "respectfully beg to ask" which particular one we want. It is sad that botanists' names cannot be evaded in gardening, but it really seems impossible.

The Ivy (*hedera helix* of botanists) has many varieties, some with large leaves, others with small; some plain, others variegated. All these have distinctive names. The Irish Ivy, with its large, green, five-lobed leaves, is *canariensis*. The one with immense, heart-shaped leaves is *rægneriana*. A fine variety, which is bronzy

in summer and purple in winter, is *donerailensis*. A pretty variety, which has green leaves margined with white, is *rhombea*, and another, with silvery edges, is *variegata*. These are a few of the best for walls. The Tree ivies are shrubby in habit.

The jasmine is a pretty, free-flowering, fragrant climber. The common species, with its sweet, white flowers, is called *occidentale* by botanists; there is a form of it with yellow leaves. The yellow winter jasmine, which blooms while leafless in mild spells throughout the winter, is also well known.

The *tropæolums* include at least one very remarkable plant in the Flame Nasturtium, *speciosum*, which residents of, and visitors to, Scotland admire so much. This extraordinary plant sheets cottage walls with scarlet. It likes coolness and shade. It generally fails in South Britain, but it thrives at Gravetye, in Sussex, rambling over hollies. It also succeeds, among other places, in the garden of Mr. J. Edward Elgar, near Wingham, in South-east Kent, where it grows like a weed. The botanists have tried several names for the Canary Creeper, such as *aduncum*, *canariense*, and *peregrinum;* it is to be hoped that they are now satisfied. The plant is best raised from seed in spring like an ordinary hardy annual. The common climbing nasturtium is also a *tropæolum* to botanists, and its name is *majus*.

The Virginian Creeper enjoys the same distinction as the Canary Creeper. Its former botanical name of *ampelopsis hederacea* has been changed to *vitis quinquæfolia*, but gardeners should refuse it under any name, as, although it colours brightly in autumn, it is a coarse grower. Veitch's kind, once called *ampelopsis veitchii*, and now *vitis inconstans*, is in every way better, being

neater, brighter, and a close self-clinger. Another valuable vine is *coignetiæ*, which has very large leaves that colour well in autumn.

Wistaria (oftener spelt *wisteria*) *sinensis* is a great favourite, and would probably be planted much more frequently than it is now if it were not so painfully slow in getting to work. A veritable Fabius Cunctator of a plant! When, after a period of several years, it has attained to something like recognisable size it is very beautiful. It produces its finest bunches when the side shoots are cut close in every year, just as gardeners prune grape vines. It likes a sandy, loamy soil. Slow in any ground, it becomes tortoise-like in clay. There are several varieties, with different coloured flowers.

The foregoing are a few of the principal climbers, but there are other attractive plants which deserve mention. *Berberidopsis corallina* has beautiful crimson flowers, borne on the ends of the branches. It is not thoroughly hardy, and should have a warm south wall. The *calystegias*, which are allied to the *convolvuluses*, are pretty trailers, but so addicted to running at the root that they become troublesome weeds unless kept under control. *Eccremocarpus scaber* is a bright orange-coloured rambler which is best raised from seed like a tomato, and planted out in May or June. *Lathyrus latifolius* (or *sylvestris platyphyllus*) is the well-known Everlasting Pea. The white variety is a beautiful rambler, and luxuriates in clay. In dry, hot soils it does not grow very freely. The *maurandias* are pretty purplish-violet flowers, easily raised from seed. *Lophospermum scandens* is now called *maurandia scandens*. *Cobœa scandens*, with its quaint purple flowers, may also be raised from seed like an annual.

One of the quaintest, and at the same time one of

the most rapid-growing, of climbers is *periploca græca*, which has small, brownish-green flowers. It will grow in almost any soil, and cover a trellis or arbour in double-quick time. The ornamental gourds are sometimes used for covering pergolas. They are raised from seed like vegetable marrows, and planted out in June.

The great majority of the climbers or creepers will thrive in ordinary garden soil provided it is broken up deeply, and well manured. In most cases early spring is the best time to plant, because they have time to make roots, and get a good hold of the soil before the hot weather comes. Failures with creepers planted against walls are comparatively common, because the positions are generally hot and dry. The soil close under a wall is often parched and poor. If it is broken up and manured the chances of success will be greater, and they will be further enhanced if a few decayed turves can be chopped up and mixed with the soil. Creepers that are planted late out of pots ought to be shaded until they are established, and the tops should be well syringed every day.

It may be well to point out that the word "climbers" is used in a general sense. Many plants that are so termed are not true climbers. They have not tendrils like peas, nor do they exude an adhesive substance like *ampelopsis veitchii*, nor can they support themselves by twining, like hops and scarlet runners. They need fastening to their supports.

Where shall we look for material for our poles, pillars, pergolas, and arches? Not, in the first place, to the ironmonger. We may have to come to him in the end, but let us try a little nearer nature to begin with. Oak and larch poles are the best, the former for duration, the latter for straightness and bark-colour. Of course the ironmonger can truthfully argue that his wares are

lasting, which timber is not. Still, we can lengthen the period of usefulness of our poles by treating that portion which is covered with soil. The simplest, and perhaps the best, method is thorough charring. Another plan is to paint with tar, and dust it with sand while wet. A third is to pickle in creosote. The last is a splendid preservative, but plants suffer from contact with it, and neither roots nor stems should be brought too close.

Cheap timber, suitable for garden purposes, can often be bought at autumn sales in forest districts. If purchased at timber merchants it will be dearer, but against this may be set convenience and saving of time.

Arches and pergolas should not be less than six feet high at the lowest part. A pergola is really a series of arches connected by cross pieces, both at the top and sides. The uprights should be seven feet apart, with the base buried not less than thirty inches. They ought to be at least six inches thick at the base. This makes for strength and rigidity, both of which are desirable. The cross and top pieces may be much lighter.

The plants ought to be gone over at least once a year. In the case of perennial plants periodical thinning out is necessary, and those which encroach on each other should be cut back. The pruner should aim at a happy medium between graceful laxity and crowding. The shoots need not be trained as systematically as a peach tree. With reasonable freedom the plants will give that light, graceful, informal effect which is so appropriate to the circumstances. We want our climbers to enjoy the sweets of liberty to as great an extent as it is good for ourselves—that is, liberty granted under the safeguard of beneficent laws.

CHAPTER VIII

TREE AND SHRUB BEAUTY

IN the chapter on Colour we saw how certain trees and shrubs could be utilised for backgrounds in mixed borders, their foliage serving as a foil to flowers. But many are beautiful in themselves, and fully worthy of cultivation for their own sakes.

The larger timber trees, such as oak, birch, ash, sycamore, aspen, chestnut, lime, elm, plane, alder, beech, and poplar are planted in extensive private gardens for shade, shelter, and general effect. Larch, spruce, and pines are planted for shelter and timber. Smaller trees, such as elder, thorn, variegated maple, mountain ash, acacia, almond, magnolia, crabs, mock orange, laburnum, catalpa, and holly, also conifers like the silver firs, monkey puzzle, cedars, cypresses, maidenhair tree, junipers, yews, and arbor vitæ, are mainly used for ornament.

We get in the various kinds beauty of leaf, bark, or bloom, and, by a judicious choice, we can have something worthy of admiration for the greater part of the year.

Shrubs are even more valuable than trees for most gardens, because of their smaller size, and their greater variety of leaf and flower beauty.

So far as colour is concerned, we get the most out of shrub bloom in spring and early summer, and out of tree foliage in autumn; but we can make a choice that will give us brightness at nearly all seasons of the year. Nor must we forget fruits.

Early Tree and Shrub Bloom

Winter Flowers.—A few good shrubs are in bloom before the spring quarter opens, and one or two give flowers in mild spells almost throughout the winter.

The most familiar example of this small but useful class is the winter jasmine (*jasminum nudiflorum*), which bears yellow flowers on leafless stems. It is a common plant, but we need hardly refuse to grow it if we have no better ground of objection than that it is often seen on porches in town yards.

The Golden Bell (*forsythia suspensa*) is a still more valuable thing, because it will grow without support, and clothe itself in sprays of bright clear yellow.

The winter honeysuckle (*lonicera fragantissima*) is precious as a winter flower for walls, although it is not brilliant.

The Mezereon (*daphne mezereum*) is a delicious little shrub, pretty without being showy, and delightfully perfumed.

Perhaps the queen of winter shrubdom is the star magnolia (*magnolia stellata*), which produces large, pure white flowers on stark bare stems. A nice bush of it is an exquisite object. The larger species (*grandiflora*) is often in flower in winter too.

Of trees proper the almond is generally the first to bloom, and it is closely followed by the cherries. Maule's quince (*cydonia Maulei*) is sometimes in bloom at mid March, and so is Thunberg's white spiræa (*Thunbergi*).

Spring Beauty of Tree and Shrub

Spring not only comes with a wealth of wild blossom, starring the woods, sheeting the pastures, and scenting

the hedgerows, but with a great outburst of beauty in tree and shrub. There is nothing more exquisitely tender of hue than the green of young larch. The long gay gonfalons of broom, the rosy rods of flowering currants, the great shining urns of rhododendrons, the glittering racemes of laburnums, the snowy sheets of deutzias and spiræas, the hot cushions of the crimson thorns, combine in a brilliant cavalcade of colour. The pageant of spring unfolds in a glowing succession of exquisite pictures. Opening bud vies with unrolling leaf. Garden boundaries, mixed borders, lawn skirtings, entrances, all give us fair scenes of green and silver, purple and gold.

Rhododendrons.—In the wild, moist valleys of the Cornish Riviera rhododendrons are in bloom in March, and at their best in April. In the deep, cool peats they form great trees, laden with giant trusses. At Kew, at Bagshot, at Woking, and at Hythe it is from mid-May to mid-June that they give us their richest stores of beauty. Londoners may see a glorious picture of rhododendron colour at the Royal Botanic Society's Gardens in Regent's Park in June; and it may send them on to Kew, where also these noble shrubs form magnificent breaks. While it is true that the plants love peat they will thrive in loam. They loathe chalk in any form, and it is waste of money to plant them on thin limestone soils, but a special station can always be made for a group if desired, and the most economical way of doing it is to buy turves as lifted, store them for a few months to decay, and then chop them up roughly and mix with leaf mould for the bed. There is a peculiarity about rhododendrons which planters should learn, and it is that the shoots for the following year start as buds at the base of the flower-trusses.

SOMETHING LIKE A RHODODENDRON—ONE OF MR. A. C. LENEY'S GIANTS AT THE GARDEN HOUSE, SALTWOOD, HYTHE.

While, therefore, decaying flowers should be removed, they should not be broken off low down, but squeezed from their seat with finger and thumb in such a way that the growing buds are not dislodged. A few varieties stand out from many. The finest of all is the glorious Pink Pearl, a huge flower of pale shimmering pink. Michael Waterer is about the best bright red, John Waterer the best crimson, and Mrs. John Clutton the best white. Gomer Waterer and the Queen are delicious blush-coloured varieties. Sappho, white with magenta blotches, is a splendid flower, and Old Port an almost equally good purple. Princess of Wales, rose with paler centre, is a delightful variety, indeed it is difficult to name all that are worth growing without making a list too long for most gardens.

Azaleas, which are linked with rhododendrons botanically, thrive under the same conditions, and also give us brilliant colouring. But the dominant shades are quite different. They are orange, saffron, salmon, and gold. They also give us white, cream, pink, lilac, and red. What are termed Ghent and Mollis azaleas are the best classes to choose. The Mollis azaleas follow up their spring bloom, in itself a sufficient claim on our attention, by beautiful leaf tints in autumn. Anthony Koster is the finest variety, but Alphonse Lavallée and M. Arthur de Warelles are also good.

Flowering Currants are cheap and valuable shrubs, breaking very early into bloom, and lasting well. They are worthy occupants of shrub borders. The best known is *ribes sanguineum*, which has rose-coloured flowers; there are deep red and white varieties of it. The yellow Buffalo currant (*ribes aureum*), is also a cheap, bright, and useful plant.

Bush Honeysuckles.—The botanist used to call the

beautiful bush honeysuckle *Weigela:* he nows calls it *diervilla.* It is ungainly and ugly when leafless in winter, and should therefore be masked, if possible, with something else; but it is remarkably beautiful when in bloom, for it flowers in great profusion, and the colours are very pleasing. The variety Eva Rathké, with deep red flowers, is generally considered to be the best, but Abel Carrière and amabile are also beautiful. Undeniably fond of a deep, well-manured, loamy soil, they will yet thrive in clay; and some of the best plants the writer knows are growing in a semi-wild state on the top of a sandbank honeycombed with rabbit-holes.

Mock Oranges. — Amongst the later spring shrubs the Mock Orange (*philadelphus coronarius*), often, but wrongly, called *syringa,* is a favourite. The creamy flowers are not individually attractive, but they are borne abundantly, and they are very sweet. There is a larger kind called *grandiflorus,* which may be given preference over *coronarius.* A very good mock orange, more suitable for small borders than the foregoing, is called *Lemoinei erectus.*

Brooms.—For light sandy and heathy land we can get no better shrubs than the brooms. Cornishmen, whose moors are covered for months with a golden sheet of gorse, tell you that when gorse is out of bloom kissing is out of fashion—a very pleasing way of suggesting that it is generally in flower. The common yellow European broom is called *Cytisus scoparius* by botanists. There are two varieties of it which gardeners favour : these are the André Broom (*Andréanus*), yellow and brown, and the Moonlight Broom (*sulphureus* or sulphur-coloured). The former is a very rich and striking plant.

Barberries are in the front rank of flowering shrubs, and several of the best are evergreen. The invaluable

White Indian Azaleas in Mr. A. C. Leney's Garden, Saltwood, Hythe.

species Darwinii is handsome both in foliage and bloom, the orange flowers and leaves forming a rich harmony. *Stenophylla* is quite as beautiful in blossom, though not in foliage. It grows with greater vigour than the Darwin barberry, and produces long, slender branches covered with flowers. Aquifolium is the well-known barberry (often grown under the name of *mahonia aquifolia*) which is used for shady spots, and for banks. It has shiny, dark green leaves, and bears yellow flowers in spring. It is a cheap and useful plant, although it lacks the distinctive beauty of the two barberries already mentioned. Darwin's is not only beautiful in itself, and quite strong enough to form a complete bed or group, but serves as an excellent foil for other shrubs.

The thorns (*cratægus*) are represented in almost every rural district by the well-known "May," which is the Quick or White Thorn (*cratægus oxyacantha*). There are several fine garden varieties. One of the best of these is known as Paul's Double Scarlet. There are Double Pink and Double White varieties, as well as a Single Scarlet, which are stocked by nurserymen. They are among the best of small trees, and are suitable for all classes of garden. The Glastonbury Thorn is an early bloomer, and is often in flower in winter. Interesting legends have grown up round it; as, that it originated from the staff of Joseph of Arimathea. Garden lovers will find the prosaic, legendless Paul's Double Scarlet much more to their purpose.

Almonds, apples, cherries, peaches, and plums.—These valuable fruits include a great many ornamental plants. The almond (*prunus amygdalus*) has already been referred to briefly. There are several varieties of it. The cherry (*prunus cerasus*) is both early and pretty. The double white form of the Gean (*avium flore pleno*) is a

beautiful tree, and so is Waterer's Bird Cherry (*prunus padus* variety). The peach (*prunus persica*) is now represented by several lovely varieties, such as Double Scarlet, Pink, and White. The branches are thickly studded with large, rosette-like flowers. The myrobalan, or cherry plum (*prunus cerasifera*), is a free bloomer. A variety of this with dark leaves, known to botanists as *atropurpurea*, and to nurserymen as *prunus pissardii*, is in great demand as a foliage tree. The sloe or blackthorn (*prunus spinosa*), is not generally considered good enough for a garden plant. It is, of course, common in the hedgerows. There is a double variety (*flore pleno*) which is worth inclusion. Many of the most useful fruiting varieties of apples and pears are beautiful ornamental trees, and the fact that they bear valuable fruit does not detract in the least from their desirability for spring blossom beauty. They belong botanically to the genus *pyrus*, and there are two kinds listed by nurserymen under that name — *floribunda*, with rosy white flowers in great abundance; and *scheideckeri*, pink, which are among the most beautiful hardy trees we have. The crabs are pretty from their flowers, and later in the year from their fruits. One of the best is the variety called John Downie.

Laburnums are common enough, but we never grow tired of them, and when mixed with lilacs, thorns, and other small trees which bloom late in spring, they do good duty. They will thrive almost anywhere, and a sufficient proof of their accommodating nature is their success on railway embankments. The Scotch (*laburnum alpinum*) is better than the common, and costs little or no more. An interesting member of the genus is the purple laburnum (*adami*), which will often bear separate racemes of yellow and purple on the same

MAGNOLIA CONSPICUA AS A POT PLANT.

plant. It originated as a graft hybrid between *laburnum alpinum* and *cytisus purpureus* in a French nursery.

Lilacs would be indispensable if we only had the common species (*syringa vulgaris*), for its abundant bunches of piquantly scented flowers make it a great favourite, and it will grow in most places; but there are several varieties of it, such as Charles I., Marie Legraye, Alphonse Lavallée, and Michael Buchner, which are more beautiful than their parent. Of the four named, the first two are single and the others double.

Magnolias are among the most beautiful of our spring shrubs and trees, with their huge, mainly white, flowers. They are hardy, but they ought to have shelter from cold quarters, or a sharp frost may spoil the blooms. The star magnolia has already been mentioned as a winter bloomer. The Yulan (*conspicua*) is a beautiful white species, flowering early in spring, and rarely growing to a great size, consequently quite suitable for small borders. The Bull Bay (*grandiflora*) and the Soulange (*soulangeana*) are larger. The former is white, the latter white flushed with deep rose. The magnolias do pretty well in most soils, but a barrow-load of chopped turves and leaf-mould used for each plant when it is put in will do them a great deal of good.

Spiræas are principally summer bloomers, but several useful sorts flower in spring, notably *arguta*, a white hybrid blossoming in April; *bracteata*, white, May and June, having flattened heads of bloom; and the double plum-leaved (*prunifolia flore pleno*), which flowers in April. *Arguta* is perhaps the prettiest of these. They all like well-manured soil.

Deutzias flower with wonderful profusion, none more

The *veronicas* are useful because of their dense, evergreen habit, but the flowers are not without attraction. *Traversi*, *speciosa*, and *Andersoni* are three of the best.

The Service Berry (*amelanchier canadensis*) has white flowers in spring, and its foliage becomes highly coloured in autumn.

Summer Bloom

Although the finest of our ornamental trees and shrubs are spring bloomers, there are several handsome kinds which flower in summer. A quaint plant, with purplish flowers followed by violet fruits, is *akebia quinata;* it is often grown on walls. The Strawberry tree (*arbutus unedo*) has white or tinted flowers in late summer, followed by berries, which assume a bright orange scarlet colour when ripe, late in the following year. The *catalpas* are good trees, and do well in towns. There is a famous old specimen in Lincoln's Inn, and a grand tree in the Royal Gardens, Kew. The species *bignonioides* bears its large flowers in great profusion, and is very handsome. The colours are yellow, white, and purple. The *ceanothuses* are generally used on walls, but may be grown on borders. The majority bear blue flowers, and one of the best is the variety Gloire de Versailles. The Bladder Senna (*colutea arborescens*) is a hardy, easily grown plant, with yellow flowers, followed by bladder-like fruits.

A beautiful but little-grown plant, with large white flowers like great single white roses, borne in July, is *eucryphia pinnatifolia*. It likes peaty soil. Fuchsias are among the most popular of greenhouse plants, but in mild districts one or two of the kinds, notably *Riccartonii*, will thrive in the open border, and they are well

worth growing there, owing to their distinct and graceful habit. They last well into the autumn. The rock rose (*helianthemum vulgare*) is a valuable dwarf shrub for sunny banks, and it is at its best in early summer. There are many beautiful varieties of it, and the three called Fireball, Magenta King, and roseum, may be selected.

The best of the popular *hydrangeas* is *paniculata grandiflora*, although it is not so well known as *hortensis*. The latter is extensively grown in greenhouses, but in mild districts thrives out of doors. Where the soil contains iron the flower heads change from pink to blue. The St. John's Worts (*hypericums*) will do in most soils, although, like the majority of shrubs, they enjoy loam. They grow densely, and bear yellow flowers. The common species, *calycinum*, grows well under trees, and as it is cheap, it may be used for carpeting the soil if desired. *Moserianum* is a handsome hybrid.

The beautiful late summer- and autumn-flowering shrub *hibiscus syriacus*, with its many varieties, will grow in almost any sunny spot. They give us a considerable range of colours. The lavender (*lavandula spica*) must not be overlooked. The tulip tree (*liriodendron tulipifera*) is a noble and uncommon tree, having large green flowers tinted with orange. In deep loamy soil it grows to considerable size. Of the acacias, the Locust (*robinia pseudacacia*) and the Rose Acacia (*robinia hispida*) flower in spring; but there is a very handsome species with rose-coloured flowers, named *neo-mexicana*, which blooms in August.

The Californian Poppy (*romneya coulteri*) is a glorious shrub, with flowers six inches across, pure white except for a central boss of yellow stamens. It is not thoroughly hardy, but it is so beautiful as to be well worthy of

a little special treatment. For instance, it should be given a sunny position, sheltered from north and east, and rich loamy soil. If, as is likely, the branches are cut down to the ground in winter, the rootstock may have a covering of dry litter, and fresh shoots will appear in spring. *Sophora japonica*, with creamy flowers, is a useful tree.

Several of the *spiræas*, notably *aitchisoni* (white) and *douglasi* (red), are summer bloomers, and they must not be passed by. *Styrax japonicum*, with its beautiful white flowers on drooping stalks, is desirable.

The Yuccas are very handsome, with their large leaves and huge columns of bloom. In rich, loamy soil they make splendid specimens, and are well worth planting by themselves. The Adam's needle (*gloriosa*) blooms in August. There is a somewhat similar plant with semi-pendent leaves, called *recurvifolia*.

Autumn and Winter Beauty

Although there is little of bloom in autumn, there is abundance of beauty from leaf and berry. The oranges and russets and browns of tree foliage are supplemented by the exquisite colouring of many shrubs, and by the bright tints of fruits. Acers (maples and sycamore) give us abundance of leaf colour. Several have variegated leaves. The Japanese Maple (*acer japonicum*) colours beautifully in autumn. The Silver variegated Box Elder (*acer negundo variegata*) is a popular nurseryman's tree, not too hardy, but safe in sheltered places. The Palm-leaved Maple (*acer palmatum*) is another Japanese species, and there are many good varieties of it. The Norway Maple (*acer platanoides*) has yellow flowers in spring, and varieties with pretty foliage are plentiful. The

Sycamore (*acer pseudo-platanus*) is also a largely grown tree.

The common Horse Chestnut (*æsculus hippocastanum*) is a very handsome tree, and those who have seen the wonderful avenue at Bushey Park in spring do not need to be told that it is beautiful in spring bloom as well as in autumn tints. A species called *parviflora* (small flowered) blooms in summer, and is good for forming a bush.

The Tree of Heaven (*ailanthus glandulosa*) is a quick-growing tree with enormous leaves, and bright orange fruits. It is very easy to grow and extremely handsome.

Aucubas are among the commonest of shrubs, and have a maddening effect on those writers who are unable to understand that a real and justifiable want exists for shrubs that are cheap, grow in most places, and are handsome. The aucubas should not be given "drawing-room" positions in the garden, but there are often rough places under trees, and inconspicuous shrubberies, where they are very serviceable. They are capital town shrubs. There are both green and variegated leaved sorts. Berries are borne freely if a few males are mixed among the females.

The Dogwoods (*cornus*) include some valuable plants, particularly the white-fruited (*alba*) and its golden variegated form Spathii; the variegated forms of the Cornelian Cherry (*mas*), and the scarlet (*sanguinea*).

The Hazel (*corylus avellana*) gives us two useful trees in the golden- and purple-leaved forms, known respectively as *aurea* and *maxima atropurpurea*.

The Spindle Tree (*euonymus europæus*) is valued for its bright fruits, and the Japanese species, *japonicum* and *radicans*, principally for the foliage of their variegated forms. They are close, neat growers.

The beech (*fagus sylvatica*) is a well-known park tree, and it has varieties with coloured leaves which are in great demand. The Copper is a familiar example.

Garrya elliptica is an interesting plant, ornamental on account of the long yellowish catkins of the male form, which are borne in winter.

The hollies (*ilex*) are full of beauty, both of leaf and berry. They will thrive in most soils. The common is a cheap and serviceable plant, but the variegated forms, such as the Golden and Silver Milkmaids, and Golden and Silver Queens, are more valued. Perry's Weeping and Hodgin's, the latter with immense oval leaves, are also sought after.

The Sea Buckthorn (*hippophæ rhamnoides*) may be seen on sandbanks near the sea in some districts. It has grey leaves and orange berries, which hang till winter.

The laurels (*prunus laurocerasus*) may be classed with *aucubas* as general utility plants, very useful where blocks of foliage are wanted at small cost, but lacking in individual interest, and not to be given the best positions. The Portugal (*lusitanica*) is smaller leaved than the common, and is a dense grower.

The Mulberry (*morus nigra*) has something of interest, if not a great deal of beauty, to recommend it. Many people like to have it as a lawn tree.

The oaks (*quercus*) are too strong in growth for many small gardens, but those who have room for them should give attention to such handsome kinds as Mirbeck's and the Lucombe, also to the varieties of the common.

Pernettya mucronata is a small, neat, dense, evergreen shrub, with beautiful fruits of different colours. It likes well-manured soil, and is often grown in pots.

The Sumach (*rhus*) is a varied genus, including the Chittam Wood (*cotinoides*), which colours brightly in

autumn; the Venetian (*cotinus*), which is attractive for its fruits; the Stag's horn (*typhina*), which also fruits; and the Poison Ivy (*toxicodendron*), the foliage of which colours in autumn. The last must be handled with gloves, as it is poisonous.

The willows (*salix*) include a variety of the white (*alba*) called *vitellina*, which has forms with yellow and red stems, for the colouring of which they are often planted.

The elders (*sambucus*) are ornamental both in foliage and in fruit. The common (*nigra*), with its white, perfumed flowers and black fruits, has several variegated forms, which nurserymen offer at moderate prices.

The *skimmias* are low evergreens with bright red fruits, which hang long on the plants. As in the case of *aucubas*, it is necessary to plant both male and female forms to get fruit.

The Snowberry (*symphoricarpus racemosus*) is not remarkable for beauty of flower, leaf, or habit, but it is ornamental in autumn, when furnished with its abundant crop of white berries, and the fact that it will thrive under trees makes it valuable. The Hon. Vicary Gibbs recommends cutting this, also such things as *spiræa douglasi*, *euonymus europæus*, and *cornus sanguinea*, quite down to the ground line directly growth starts in spring if autumn beauty is sought. He points out, too, that *leycesteria formosa*, generally grown for its fruiting in summer, is also valuable for its green stems in winter when spring pruned.

The Sweet Gum (*liquidambar styraciflua*) reddens gloriously in autumn, and the snowy Mespilus (*amelanchier*) is worth growing from the same cause. The June or Service Berry (*canadensis*) is perhaps the best.

The Tamarisk (*tamarix anglica*) is the small-leaved,

feathery, pink-flowered shrub, which is often seen in a semi-wild state near the sea. It likes sandy soil.

The Tea Tree (*lycium chinense*), useful for its scarlet berries in autumn, will also do well near the sea.

The Japanese Rose (*rosa rugosa*), with its vigorous growth and great mass of foliage, is valuable for making large groups, and its berries are very handsome in autumn.

The Pampas Grass (*gynerium* or *cortaderia argenteum*) is neither a shrub nor a tree, but it has all the distinctive and pleasing effect of the best representative of either class, and is well worth growing in an isolated position on a lawn, where its tall, silvery plumes will be beautiful in autumn. It is the better for a little shelter. Arundo conspicua is another good plant for this purpose.

Selected Tables of Trees and Shrubs

In view of the considerable number of trees and shrubs named, it seems desirable to give a few selections for those readers who have quite small gardens.

Large trees.

Copper beech.
Mirbeck's oak.
Lombardy poplar (for quick growth).

Conifers.

Abies nordmanniana.
*Monkey puzzle (araucaria imbricata).
Cedar.
Cryptomeria japonica.
*Cupressus Lawsoniana.
Retinospora obtusa.
*Maidenhair tree (ginkgo biloba).
Juniper.
*Libocedrus decurrens.
Picea morinda.
Scotch fir (*pinus sylvestris*).
Austrian pine (*pinus austriaca*).
*Douglas fir.
*Sequoia (Wellingtonia) gigantea.
Yew.
Arbor vitæ.
Hemlock spruce.

*Choose for six.

Variegated trees.

Acer negundo variegata.
Golden and silver hollies.

Dark-leaved tree.

Prunus Pissardii.

Green-leaved trees.

Tree of Heaven.
Paulownia imperialis.

Flowering trees.

Paul's double scarlet thorn.
Scotch laburnum.
Magnolia grandiflora.
Almond.
Pyrus spectabilis.
Lilacs.

Variegated shrubs.

Silver and golden box.
Spath's dogwood.
Silver and gold ivies.

Flowering shrubs—Winter.

Winter jasmine.
Mezereon.
Forsythia suspensa.
Magnolia stellata.

Flowering shrubs—Spring.

Azalea mollis.
Rhododendron.
Flowering currant.
Diervilla or weigela.
Kerria, double.
Viburnum plicatum.

Flowering shrubs—Summer.

Spiræa Douglasi.
„ Aitchisoni.
Romneya Coulteri.
Hibiscus syriacus flore pleno.

Soil for Trees and Shrubs

Numerous hints as to soil have been given in the references to the various kinds. Speaking generally, trees and shrubs thrive best in well-manured, loamy soil. Clay will suit a large number, provided it is drained, well broken up, and manured. When it lies stiff, water-logged, and cold, it is unsuitable. Of timber trees beech and poplar thrive in clay. The partiality of roses for it is well known. For rhododendrons a good deal of loam and leaf-mould should be added. Thin soils on chalk are perhaps the most difficult to fit, and in view of this special lists are given.

Conifers for chalk.

Abies nordmanniana.
Picea morinda.
Pinus sylvestris.
„ Laricio.
Cupressus Lawsoniana.

Trees for chalk.

Acers (maples).
Copper beech.
Mountain ash.
Pyrus floribunda.
Almonds, peaches, and cherries.
Thorns.
Laburnums.
Catalpa.
Hollies.

Shrubs for chalk.

Berberis.
Box.
Spiræas.
Brooms.
Kerria.
Mock orange.
Flowering currant.
Euonymus.
Privet (for hedges).
St. John's Wort.
Lilacs.
Viburnum.
Magnolia conspicua.
Diervillas.
Sumach.
Laurels.
Aucuba.

In the case of the best plants it will be well to break up a few inches of the chalk and place manure on it. Surface dressings (mulchings) of rich manure will be very helpful, and they may be put on in the autumn every year.

Pruning Trees and Shrubs

Knife and shears should be used sparingly, except in the cutting down of certain kinds for winter effect, as referred to in connection with the Snowberry and other plants. Flowering trees need only be kept from becoming overcrowded. As we have already seen, the majority of our best shrubs bloom in spring; and, in the case of these, the shoots should be pruned in after flowering. The new shoots which grow during the summer must not be pruned, as they constitute the flowering wood of the following year. On the other hand, kinds which flower late in the year must not be pruned in spring, but in autumn.

Old rhododendrons which are growing in suitable soil, and have become "leggy" (a gardening phrase indicating bareness at the base), may be pruned back into the old hard, basal wood with a sharp saw. They will bear almost any degree of pruning with cheerfulness, breaking freely into strong new growth, and in due time blooming well.

CHAPTER IX

BULB BEAUTY

THE literary flower-lover may have moments when the interests of the garden and the study seem to clash. Alluring duties summon him to the garden. There are seedlings to be "pricked off," cuttings to be taken, herbaceous plants to be put in. It is sunny and spring-like. There is a touch of softness in the air after long weeks of sharp weather. The call of the garden is insistent. But last night—or was it in the early hours of this morning?—an entrancing book was left unfinished, and there it lies, seductive, appealing, all but irresistible.

The present (and surely every other) writer knows that problem. Perhaps it has been solved ere now by setting a not unwilling secretary to walk beside him and continue the book while he busied himself with the flowers. Every now and then, mayhap, a seedling lay motionless on the end of a label, suspended in mid-air, uncertain as to whether its fate was to be inserted upside down, or whether, indeed, it was ever to be put in at all.

Sometimes the book and the task may have fitted, as when the receipt of *La Tulipe Noire* among a parcel of books has synchronised with the arrival of a box of bulbs, ripe for potting. Then has the inimitable creation of Dumas been propped up in the potting shed, and the loves and sufferings of Van Baerle, the wickedness of Isaac Boxtel, and the tragedy of De Witt

have unrolled themselves during the crocking of pots and the mixing of composts.

The tulips have come back again into favour, but not with such feverish force as to revive recollections of the old craze, when Semper Augustus and other popular varieties were worth many times their weight in gold, and when houses and lands were bartered for single bulbs. Tulip lovers state their requirements on a decorous order-sheet nowadays, and remit the amount of their indebtedness to the dealer through the post; they do not rush to his house in the dead of night, drag him out of bed, and flourish title-deeds in his face to induce him to part with a rarity.

In making a brief survey of the resources of bulbdom for beautifying our flower gardens, we need not allow ourselves to be tied too tightly by a definition. Botanists have an exact meaning for the word "bulb." It is not a "corm," or a "root," or a "tuber," or a "rhizome"; it is just a "bulb." Now, a bulb is built up of a series of fleshy scales, so that although an onion is a bulb, an anemone is not. Are we, then, going to leave out the anemone? Perish the thought! Avaunt, definition-mongers! We'll have none of you. The rough and ready classification of the bulb-dealer is good enough for us.

That quaint little flower, the winter aconite (*eranthis hyemalis*), is good for naturalising, and for forming colonies in borders and on banks. Its yellow flower is surrounded by a green "ruff," which conjures up pictures of Elizabethan nobles. It is often in bloom before the snowdrops, and is certainly one of the first flowers of the year. It will grow nearly anywhere, and costs next to nothing.

The *alliums* inspire a wholesome respect, not un-

mixed with fear, in the hardiest soul. One approaches them as one does a picturesque Italian peasant—full of admiration, but resolved not to come too near. To handle the flowers is to smell like an onion store. But one may grow alliums without making button-hole flowers of them; and several, notably the species *moly*, yellow; *neapolitanum*, white; and *ostrowskianum*, rose, are very pretty, as well as inexpensive, plants.

The Chilian herb lilies (*alstromerias*) are unlike anything else one sees in herbaceous borders, and that alone is something; add that they are really beautiful flowers, and, when once established, will thrive without attention, and we see that they have powerful claims. When one sees alstromerias perfectly at home in a cottage garden, forming a large clump and yielding scores of flowers, with never a bit of cultivation of any kind, and when one hears of their failing in larger places, one becomes convinced that they belong to that small class which thrives better without division and manuring than with it. There is such a class; it is not a big one, but it exists. On the whole, they prefer light soil to heavy. All the same, a cottager friend of the writer points proudly to a fine clump on most uncompromising clay, and, what is more, preens himself on having scored over an unwary judge by including the flower in a collection of hardy annuals, and taking first prize. The species *pelegrina*, with its white, purple, and yellow flowers, is the most beautiful of the alstromerias, but is perhaps scarcely so hardy as *chilensis*. Plant in autumn.

The *amaryllises*, which the botanists now call *hippeastrums*, are not for flower gardeners, but the species *belladonna*, which is none other than our lovely friend the belladonna lily, is, provided we can give it

a warm, dry position, and protect it with litter in the winter. In the botanic gardens they put things of this half-hardy or three-quarters-hardy class—*calochorti*, *nerines*, *watsonias*, and so forth—in sunny borders beside the plant-houses, where there is shelter and comparative warmth. It is well to be on the alert in buying belladonna lilies. Order them early in autumn, but let the dealer send them at his own time, and plant them directly they come, preferably in well-drained, sandy, loamy soil. They are often in growth when they come, but that will not matter provided they are dealt with promptly.

Bulb-dealers sell roots of many beautiful and cheap *anemones*, which can be bought and planted like crocuses in autumn; but the flower lover must never be content without a stock of the modern strains of crown anemone (*coronaria*), notably that known as the Alderborough. A strain of crown anemone originated in Ireland, and was called the St. Brigid; this itself is beautiful, the flowers being as large as poppies, but much more varied in colour. The Alderborough strain is apparently an improved St. Brigid. The flowers are large, and embrace single, semi-double, and double. The colours are very brilliant and varied, and include some glorious blues. The tubers can be planted either in autumn or spring. The writer finds that the cheapest way of getting a large stock is to sow seed in spring. On his moist clay soil he generally flowered them the same year, but all bloomed beautifully the following spring. Nearly all the popular anemones—*apennina*, *blanda*, *fulgens*, *hortensis*, *japonica*, *memorosa*, *pulsatilla* (pasque flower), *sylvestris*—are beautiful, but the Alderborough crown anemone is the finest garden plant of all.

The true *arums*, as distinguished from the white

"Arum lily," which is not an *arum* but a *richardia* (*calla*), are more quaint than pretty. This is a mild way of saying that they come as near to being downright ugly as flowers can. The plant grandiloquently called the Monarch of the East (*sauromatum guttatum*) is *arum cornutum*. The "Black Calla" is *arum arisarum*. Perhaps the best species is *italicum*, which has greenish variegated flowers, green leaves spotted with white, and scarlet fruits. In cold districts the *arums* (if grown) should be given light soil and winter protection; but in a mild spot the writer found them to thrive (only too well!) on clay, and unprotected. The arum lily itself will thrive out of doors in mild districts, provided it has plenty of moisture.

We glanced at tuberous begonias in our chapter on Colour, and saw that they were good, not for bold, upstanding masses, like pæonies and phloxes and delphiniums—they are low growers—but they make lovely masses of colour. They are "handy" things, too, because you can start the tubers in shallow boxes of leaf-mould or cocoa-nut fibre refuse in a frame in spring, keep them in boxes till the spring flowers are over, and then plant them out in cool, moist weather They will not start well in hot, dry weather, nor in poor, light, dry soil. They like rich, holding ground, and abundance of moisture. On a thin, chalky soil the writer had a pleasant and somewhat unexpected success by planting them in a bed among wichuraiana roses. The long canes of the latter sprawled all over them, but apparently did them good instead of harm, perhaps by keeping them cool and shaded. Any way, the begonias throve and the wichuraiana roses throve, and there was the bed all full of fat stems, thick, broad, shining foliage, and beautiful flowers.

The most exquisitely painted of all bulbous flowers is the mariposa lily, or butterfly tulip (*calochortus*), a Californian plant, loving warm, well-drained, loamy soil, and sunshine. It is worth a journey to Kew at the end of June to see the border of these lovely bulbs. The flower lover will not fail to observe that they are given a warm, sheltered place. They would probably fail in a cold one, especially on heavy, damp soil. The bulbs cost about half-a-crown a dozen. The varieties of *venustus* are as good as any for growing out of doors, as they have a strong constitution. The flowers are beautifully marked, the inside of the large white or yellow cups being boldly blotched. They may be planted in autumn, provided the position is a warm one.

We stretch elasticity to its extreme when we class the *canna* among bulbs, but it is a bulb-dealer's plant, and may be included. Fine modern varieties, such as America, Aurore, Austria, Italia, Königin Charlotte, Menelik, Madame Crozy, and Plato, are very little inferior to Gladioli in size, and in the richness of their colouring. They are not quite so convenient, because they cannot be stored in so small a compass. If dried quite off they often die in the winter. Gardeners generally store them under greenhouse stages, and propagate them by division when they start growing in spring, planting them out in June. They enjoy a deep, rich, cool soil, with plenty of moisture. They are doubly valuable for colour groups on account of their splendid foliage. In some varieties it is green, in others bronze or brown, but it is large and handsome in all.

The Glory of the Snow (*chionodoxa luciliæ*) is a dainty blue companion to the snowdrop, and grows as freely. It can be bought with other bulbs in autumn, and planted then.

The Christmas and Lenten Roses (*hellebores*) are of the large class that are not truly bulbous, but are dealt in by bulb-merchants. The Christmas Roses are varieties of *helleborus niger*, and the Lenten Roses of *helleborus orientalis*.

When you go into Kew Gardens on a bitter January day and find clumps of Christmas Roses full of beautiful white flowers, you realise how valuable the plants are. At Kew they are planted among hardy ferns—a singular but by no means inappropriate plan. The flowers are delightfully pure and clean.

Where the Christmas Roses thrive—and they do best in rich, heavy, cool soil; worst in shallow, poor, dry ground—they spread into large clumps, some of which may be taken up in autumn and potted. Or the bulb-dealer will sell you plants at about a shilling each. There are several varieties, two of the best known being the narrow-leaved *angustifolius*, and the large *maximus*.

The meadow saffron (*colchicum autumnale*) has the peculiarity of flowering in autumn, and not throwing up leaves until spring. Kentish cottagers call it "naked boys" because of this. The type is like a very large purple crocus, and it is sometimes called the autumn crocus. There are several varieties of it, some double. The meadow saffron makes interesting little patches of colour in its season.

The *crinum* is a splendid bulb, and it is sad that it is not perfectly hardy. Like the butterfly tulip it must have a warm, sheltered place, such as a sunny greenhouse border, if it is to thrive in the open air. The pretty pink species *capense*, sometimes known as *longifolium*, and its white variety, also the rose-coloured *Powellii*, are the most likely of these beautiful amaryllids to succeed out of doors. They suffer a great deal from

A clump of the Meadow Saffron, Colchicum Autumnale, in a Border.

cold winds, and must be protected from north and easterly gales. Given that shelter, and a deep, loamy soil, they are gloriously beautiful. Purchasable in autumn, they are not at all dear, although they do not come into the class of bulb that the average person can afford to buy by the thousand.

Some of the most beautiful of the species of crocus were named in the selections of plants for rockwork, but we must not despise the spring-flowering Dutch section, such as Avalanche, King of the Blues, Golden Yellow, and Sir Walter Scott. These bright little plants are dirt cheap, and make very cheerful colonies. Growers find that birds are very fond of pulling the yellow flowers to pieces. A line of black thread just above them generally suffices for protection.

We have already discussed the Crown Imperial (see the chapter on Colour). We have also alluded to the hardy cyclamens, such as *coum* and *europæum*. These make charming little colonies on rockwork, both foliage and flowers being pretty; in fact, there is nothing more dainty in the way of low rock-plants. They may be in bloom any time from September to March.

The bulb lover will find many uses for daffodils and narcissi, and if he be wise he will look out for advertisements of cheap things like Barrii conspicuus, poeticus, Henry Irving, golden spur, obvallaris, Horsfieldii, Empress, pallidus præcox, Van Sion, Sir Watkin, Stella superba, and the common Lent lily in autumn. The Cambridgeshire bulb-growers, who are mostly centred at Wisbech, offer these varieties by the hundred and thousand at rates which make the amateur rub his eyes, and wonder whether he is awake; or else carefully close one eye, and scent a "fake." The bulbs are right enough. The writer has been over the growers' grounds,

and has bought their bulbs. The majority have bloomed, and on the whole he has been satisfied. If you buy a thousand bulbs of the lovely poeticus, and eight hundred odd flower, your grumble is not likely to be a very deep one. Of course some people would complain if they had been paid to take the bulbs, and nine hundred and ninety-nine out of the thousand had flowered.

It is cheap, popular narcissi like those named that make gardens. There is no earthly reason why they should not be planted in clumps in herbaceous borders in autumn, as well as colonised in grass, for it is easy to lift them out in spring when their bloom is over, and put them in some out-of-the-way spot till autumn. Another way of getting large quantities of narcissi cheaply is to approach florists who force them on a large scale in boxes for early cut bloom. These growers do not care to force the same bulbs again, yet they are all right for flowering out of doors.

Flower lovers often complain of the non-blooming of the double poeticus, often called the gardenia narciss. This may be due to imperfect ripening of the bulbs in some cases, but it is certainly a result of planting late in poor, parched soil in others. This, like most narcissi, loves a cool, moist soil. The writer has planted large numbers of the cheap Wisbech bulbs in clay in October, some of them none too large and plump, and they have bloomed almost to a bulb. In dry soil the flower stems show, and the buds form, but they shrivel instead of expanding.

Dahlias have had sufficient attention in earlier chapters. Dog's Tooth violets (*erythroniums*) have also been mentioned, but briefly ; they are useful little plants, and uncommon. If you did not admire their pretty

flowers (but you would, never fear) you would succumb to the attractions of their marked leaves, which some folk say are as handsome as the foliage of lady's slipper orchids. The ordinary kind (*dens-canis*) and its varieties can be bought for about five shillings a hundred, but the bigger ones, like *giganteum*, cost two shillings a dozen. They are very nice for rockwork, and for forming little colonies in borders, where they are not in danger of being overrun by rampageous neighbours. Plant in autumn.

Although the Crown Imperial is the largest of the *fritillaries* it is not by any means the only one worth growing. Indeed no! The species *meleagris*, the snake's head lily, is a most original plant, having drooping, urn-shaped flowers, tessellated with purple. The writer once saw a bed in Kew Gardens which struck him as full of interest and charm, although there was nothing whatever brilliant about it. The quaint flowers were swinging idly in the breeze. The bulbs cost about three and sixpence a hundred in autumn.

The name *galanthus* sounds a little awe-inspiring, but it stands for nothing more formidable than our dear little friend the snowdrop, which we have already glanced at under rockery flowers. The Lincolnshire and Cambridgeshire growers are almost as great at turning out cheap snowdrops as cheap narcissi, and there are no better bulbs than theirs. The old single variety is as good as anything for naturalising in grass, but rockery lovers may prefer Elwes's giant variety.

In "Colour for all Seasons" we saw what a useful plant *galtonia* (*hyacinthus*) *candicans* is. It bears white flowers on a tall, arched stem, and looks at its best when it is rising from other things. As it only costs five or six shillings a hundred, it may be used for

grouping. It associates well, for instance, with *gladiolus brenchleyensis*, which we have already noted as a grand border plant, full of colour, and quite cheap. The *galtonia* may be bought and planted in autumn.

Hyacinths are used in immense quantities in the London parks, and when at their freshest look very well as mere blocks of colour. Unfortunately they have a rather "squat" appearance, and their lack of grace tells against them as garden plants. They do not last very long either. The park gardener tries to relieve their dumpiness by associating them with some graceful narciss, such as Sir Watkin, but he does not wholly succeed. One may cushion them around with forget-me-not and arabis, but cannot be sure that all will be in bloom together. When they are, they make very charming little bits of colour. Like daffodils, hyacinths are clay lovers. We have really got altogether wrong ideas about bulbs, classing them as light-soil plants pure and simple, on no other ground than that they are grown commercially with success on the sand-dunes of Holland. The secret of the success of the Dutchman is not the sand, but the moisture in the peat-beds just beneath it. Plants with big masses of thirsty roots like these bulbs are almost always clay lovers, because of the moisture. If hyacinths are planted in any quantity, sorts of distinctive character, like Gigantea and Grandeur â Merveille, blush; La Grandesse, white; Charles Dickens, Grand Maitre, and King of the Blues, blue; and Robert Steiger and Von Schiller, reds, should be chosen.

The grape, feather, and musk hyacinths (*muscari*) are pretty little things, charming alike for rockeries, borders, and groundwork for beds. The writer has colonised the lovely little grape hyacinth called Heavenly Blue

on a shady bank near water, and had exquisite cushions during daffodil time. The bulbs cost about five shillings a hundred, so they are not at all dear.

The irises are a great host, rich alike in numbers, diversity, and colour. We have already glanced at them, noticing particularly the splendour of the Japanese iris for growing by the water-side. Some of the cheapest, and some of the most beautiful, of the irises are true bulbs. Of the former we may name the English, costing from eight to ten shillings a hundred, and the Spanish, costing four to five shillings a hundred. In a beautiful garden in Bedfordshire with which I am acquainted, they bed out cheap white bulbous irises among the roses—an uncommon plan, and a very good one.

Several of the bulbous irises are winter bloomers. The writer has a vivid recollection of plunging round a snowbound Dutch nursery one bitter day in early March, and being led to a corner wherein a clump of the little six-inch-high yellow iris called *Danfordiæ* was blooming. It looked so warm and cheerful in the snow that he felt he could warm his feet at it. *Bakeriana* is another winter six-incher—a pretty little plant with blue and white scented flowers, but it is somewhat expensive. *Alata*, pale blue dotted with yellow, costs about eighteenpence a dozen, and is good. The Actor iris, *histrio*, blue, marked with yellow and purple, is another genuine winter bloomer, as hardy as an oak. The Persian iris (*persica*), pale blue and yellow, and Heldreich's variety of it (*Heldreichii*), rich blue, marked with violet and yellow, are lovely little irises. They are not cheap enough to colonise, but they are gems for the rockery. One of the most popular of the bulbous irises is *reticulata*, purplish blue, yellow crested and black

spotted, deliciously perfumed; it is an exquisite winter flower for the rockery, or for pot culture in a frame. The price is about six shillings a dozen. *Rosenbachiana* violet, blue, and yellow, is a favourite with iris lovers, but it costs something like three shillings a bulb. All these irises thrive in good, rock-garden soil.

The class called cushion irises contains one of the most interesting of all, namely, the great, sombre Mourning iris, *susiana*, the greyish flowers of which are closely netted with chestnut. It is a tall plant, with an individuality all its own. It must not be planted in early autumn and left unprotected, or it will grow, and probably get damaged by frost. It is best to plant towards the end of November, and have some bracken at hand to spread over the bulbs in case of severe weather. There is a lovely "cushion" called *Gatèsii*, creamy white dotted with silver, covered with a grey network, and bearded with yellow, that takes the iris lover by storm. It is of low growth, but has a large flower. Unfortunately it is rather too dear for most folk.

The non-bulbous, or rhizome-rooted, section begins and ends, in the case of many amateurs, with the blue "flag," so much at home in town gardens, and thriving in poor soil. It is truly a plant to be grateful for, but perhaps not to concentrate oneself upon. There are two or three which certainly ought to be grown in addition. One of these is *aphylla Madame Chereau*, a beautiful white flower with broad lilac margin. Another is *pallida*, a huge, lavender-coloured three-footer. (There is a lovely variety of this called *dalmatica*, but it costs about five times as much.) Both of these cost about

the same as the blue flag—say five shillings a dozen. The species *sibirica*, and its white variety, *alba*, both costing about five shillings a dozen, are favourites of the writer. He has been able to make good use of them in heavy, cool soil, which they seem to love.

Irises of some sort or other we must have. Happy the person who can afford the luxury of a complete collection. He will grow some of the dwarf winter bloomers in pots, perhaps; others in the rock garden. And in his herbaceous borders he will have the noble clumps of the rhizome irises. With the exception of the rather tender "cushion" sorts all the irises can be planted like Dutch bulbs in autumn.

The African corn lilies (*ixias*) are graceful, if somewhat artificial-looking, bulbs. They include that rarity in flowers, a green, but if the most uncommon, it is not the prettiest. Crateroides (or speciosa), scarlet, is about the best, but there is a charming yellow called Golden Drop, and a white named Snowflake. They all cost about one shilling and sixpence a dozen. The ixias are not fully hardy, and some people keep them in pots. Lachenalias are pretty in hanging baskets. Wire baskets are quite suitable if lined with moss, as the latter keeps the soil in. The bulbs may be put all round the sides.

The Snowflakes (*leucojums*) are every whit as pretty as Snowdrops, but not nearly so well known. The flowers are larger, and are white, tipped with green. There are several species, but two stand out in front of the rest, namely, the Summer Snowflake (*æstivum*) and the Spring (*vernum*). The former is a beautiful

flower for rockwork, and has a very pleasant violet perfume. The price of both is about five shillings a hundred, and bulbs can be bought and planted in autumn.

The lilies, from the little Lily of the Valley (*convallaria*) to the majestic *lilium auratum*, are full of charm. Who can resist the Lily of the Valley, with its dainty little white spikes and delicious odour? Pity 'tis that people will not grow it well in their gardens, but merely force it, and take it in an unnatural state, like *pâté de foie gras*. This little woodland flower loves cool soil and shade. The Fortin variety is finer than the common, but costs more—about a guinea per hundred, flowering crowns. One can buy Lilies of the Valley thus, or in what the dealer calls clumps, and the latter may be bought for planting out in autumn, although crowns are advisable for forcing.

We gave attention to the *liliums* in the chapter on Colour, and need not go over the ground again. Amateurs will bear in mind what glorious flowers these are, and remember to order bulbs in autumn—*candidum* (the Madonna lily) in summer, as it is an early grower.

The Star of Bethlehem (*ornithogalum umbellatum*) is a pretty white-flowered bulb that costs only about six shillings a hundred, and may be planted in the border in autumn.

The florists' *ranunculas* is an old flower, very symmetrical, very brilliantly coloured, but a little stiff and artificial in appearance. It has fallen out of favour somewhat these later years, and may never again regain its old place. It has a curious, claw-like, tuberous root, which dealers sell at a low rate (about four shillings a hundred) with bulbs in autumn. Of the several

A GOOD DARK FORM OF LILIUM AURATUM, GROWN BY MR. W. C. BLAKEWAY.

sections perhaps that called the Turban is the best. There are many distinct varieties of it, as there are of the other sections. The roots may be planted in autumn, but the old florists (who knew very well what they were about) used to plant them in February, claws downward, about two inches deep.

On New Year's Day of 1908 the writer found in a sheltered corner at Kew a clump of plants, with stems about a foot high, bearing scarlet flowers. The day was bitterly cold, and the sight of these gay blossoms was as cheering as it was unexpected. The plant is an old one, which very few people know. It is sometimes called the Winter gladiolus; its formal name is *schizostylis coccinea*. The plant will grow in ordinary garden soil, and may be potted up in autumn for blooming in conservatories. Flowering out of doors in the cool weather, it generally lasts a long time in beauty. Hearing all this, and knowing nothing whatever about this plant, the reader naturally assures himself that it must be a very expensive one. On the contrary, it costs only three shillings and sixpence a dozen.

The squills, particularly the Siberian (*scilla sibirica*), are excellent little early-blooming bulbs. The latter costs about ten shillings a hundred, and its blue flowers are very bright. There is a white variety of it. *Bifolia* is another delightful little blue bulb, flowering with the snowdrops, and costing very little. Both these blue squills make a charming groundwork for taller plants in beds. There are pink, rose, and white varieties of *bifolia*. *Scilla festalis* is the well-known "bluebell."

The *Sparaxis* is very similar to the *ixia*, and may be grown in the same way.

The *tigridia* (*ferraria*) is one of the most brilliant, if evanescent, of flowers. The species *pavonia* is the

Tiger Flower. Its markings of crimson, orange, and yellow are very rich. They are not quite hardy, and are best treated like gladioli, going into the ground in April, and being lifted in early autumn for winter storage in a frost-proof place.

The American Wood Lily (*trillium grandiflorum*) is a beautiful bulb, white as the driven snow, and charming for a colony in shade. One may see it thus established in the gardens of the Royal Horticultural Society at Wisley, near Ripley, Surrey, which every flower lover should visit in late spring. The Wood Lily costs seven shillings and sixpence a dozen. If the soil is stiff, peat and leaf soil or sandy loam would improve it.

Sternbergia lutea is a very pretty and valuable autumn bloomer that thrives in any fairly light, warm soil. The flowers are bright yellow. It looks very nice on rock-work. A newer species called *macrantha*, which also has yellow flowers, but is larger than *lutea*, and produces its leaves in spring instead of autumn, is coming into favour.

The *tropæolums* are pretty ramblers. The flaming *speciosum* has been mentioned already, and its love of cool, moist conditions duly noted. It is a glorious plant where it thrives—few finer, indeed—but alas! it succeeds with few. There is a pretty yellow creeping species called *polyphyllum*, which looks very bright when clothing a low stump. Unlike *speciosum*, it loves a warm, sunny position, and a comparatively dry soil, such as sandy loam. It is quite a cheap plant.

We get immense variety, as well as wonderful richness of colouring, in the tulip. This old flower has had a strange, eventful history. It has been one of fortune's playthings—now a species of gambling counter, dissipating fortunes, exciting speculators—now no more than the centre of a little narrow coterie of florists.

There was, perhaps is to this day, a society—a kind of antediluvian institution—living on the past of the tulip, with a mere handful of members, and cultivating a class which garden lovers scarcely know the existence of. The tulip fancier estimates the merits of his flowers by the regularity of their markings. His white grounds, which he calls *byblœmens* and *roses*, must be white grounds; and his yellow grounds, which he calls *bizarres*, must be yellow. If a flower which should have a white ground-work is stained with yellow, or *vice versâ*, it is condemned; it is a sort of plant pariah, and must be cast out. There is no gainsaying that these florists' tulips, with their large, cup-shaped, solid-petalled flowers, as substantial as kitchen pottery, and yet as delicate as old china, and with their exquisite purity of colour, are very beautiful; but they are too scarce, too expensive—too intimate and exacting a study—for everyday flower lovers. They are tulips to specialise, to put in a sacred corner to themselves, and be covered with an awning when in bloom, and be visited by little, whispering groups of the elect, who scrutinise deliberately, and give judgment after an almost microscopic examination.

We have seen that we are not to despise the early Dutch tulip. It is a useful little flower, thriving in most soils, very cheerful in colour, and very, very cheap. The person who does not mind buying in mixture can get a hundred bulbs for from eight to ten shillings. We willingly dot clumps of early tulips in our borders, where they make bright patches of colour in April. But we will not make the mistake of cramming large beds with them—great splashes of unrelieved colour. This sort of thing is well enough for pleasing the crowds who visit the town parks, and whose floral tastes are elementary, but flower lovers want something better. Bed early

tulips by all means if you like, but do not make smears of them. Put them in separate groups, and carpet the ground between them with *arabis*, or *squills*, or *forget-me-nots*. This can be done as soon as the ground is clear in autumn. The bulbs may be covered with two inches of soil. The following are a few of the very best varieties :—Brunhilde, buff yellow, flamed with white; Chrysolora, a well-known yellow; Cottage Maid, white, edged with pink, very pretty, and one of the cheapest; Joost van Vondel, crimson and white, also a very fine pure white variety; Keizer's Kroon, scarlet, edged with yellow, a tall, upstanding, large-flowered sort; Le Rêve, buff pink, a beautiful thing; Mon Tresor (Ophir d'Or), a very fine yellow; Pink Beauty, pink, with a white spire in each petal, very beautiful; Prince of Austria, orange scarlet, sweet; Proserpine, dark rose, one of the earliest; Queen of the Whites, a glorious pure white; Thomas Moore, orange buff, a very old favourite with bedders; Vermilion Brilliant, scarlet; and White Swan, an exquisite pure white, with pointed flowers. The foregoing are singles. The following are nice doubles :—Blanche Hâtive, an early white, charming for cutting; Couronne des Roses, rose shaded white; Imperator Rubrorum, crimson; La Candeur, white; Murillo, blush; Salvator Rosa, rose; and Tournesol Yellow, yellow, shaded with orange.

The Duc van Thol tulips, single and double, various colours, are very early, and being extremely small are generally kept for pots, but there is no reason why we should not avail ourselves of their early colour out of doors.

If the flower gardener cannot carpet his tulip beds with one of the plants suggested, he might give attention to the sorts with variegated leaves. Many people who

have grown tulips for years do not know that such a class exists. Not only does it, but it is composed of varieties whose flowers are identical with those of standard sorts. Just as you can get a number of sweet peas in both the ordinary tall and in dwarf strains (called Cupids), so you can get tulips in green-leaved and in variegated-leaved strains, the flowers being the same in both. The coloration of the foliage is not alike in all. Some are green with white edges, some green with yellow edges. There are varieties, too, in which the marginal colour is broken; as, for instance, silver is splashed with red.

The Parrot tulips are a singular and flamboyant class. The petals have the curve of a parrot's beak, and are twisted and crinkled in an extraordinary way. The colours are generally flaming combinations, as in the popular variety Markgraaf von Baden, which has a yellow interior, and external featherings of scarlet, green, and purple. There is nothing stiff and constrained about Parrot tulips. They are a rollicking, riotous set. When they get together there is a "we-won't-go-home-till-morning" air about them which seems to mark them out as very desperate fellows, well fed up with wild oats, which have got to be sown without delay. And they have a "way with them" when cut, and disposed in bowls of old ware.

It is only necessary to make a very brief reference here to the late Darwin and Cottage tulips, which were dealt with fully in the chapter on Colour. They are the great class—the most important of all our tulips for garden effects. They are much dearer, it is true, than the sections which we have just been discussing, and their late flowering upsets the old bedding routine; but we must not be without them, even if a sacrifice has to be made.

The Zephyr Flower (*Zephyranthes candida*) is a pretty autumn-blooming bulb, with white, crocus-like flowers in autumn, which thrives in cool soil. It may be planted in spring.

Here, then, is a survey of the great and popular family of bulbous and allied plants. We see that it gives us an immense variety of splendid material, blooming at all seasons of the year. We find in it tall plants and dwarf—plants for masses, and plants for relieving masses. It gives us beauty for the borders, the beds, the wild garden, the turf, and the woodland. Most of the plants which compose it are cheap and easy to grow; and if all are not equally suitable for all sorts of soil, kinds can be found which will thrive whatever the ground may be. Some of our bulbs like sun, some enjoy shade. Some are at home on banks, others in the rockery. As a class they are worthy of our closest attention, giving us unrivalled beauty and perfume without making unreasonable demands either on our means or knowledge.

CHAPTER X

SOME SPECIAL FLOWERS AND HOW TO USE THEM

THERE are some garden favourites that we rarely think of as belonging to any particular class. We do not associate them with herbaceous plants, or rock plants, or bedders, or anything else ; they are just themselves. Of course this does not hold with the botanist. No plant has an individuality so strong as to restrain the botanist from laying a classifying hand upon it, and thrusting it into some pigeon-hole or other. A resolute man, the botanist, but a peculiar. He loves to fix plants up with Latin names, and docket them. Then he has a kind of spring cleaning; he takes them out of their pigeon-holes, and names them all over again. Meantime, people with fads for English names have also dealt with the plants, and as they never agree with each other a poor plant gets as long a list of names as a babe of the Blood.

ANNUAL ASTERS.—A flower which provides an illustration of both points is the annual aster. It is a plant which flower lovers never think of classifying, and it is a two-name plant. The seedsman puts h.h.a. after the aster, and the letters stand for half-hardy annual. But this does not constitute a classification, because there is no agreement as to whether annuals are herbaceous plants or not. In the minds of some authorities every plant is herbaceous which dies to the ground in the

autumn. Whether the roots which it leaves there are alive or dead does not count with them. Others (and these the majority) only class as herbaceous plants those which, while losing their leaves and stems every year, retain their roots, and spring afresh from them season after season. The asters that we are discussing now are annuals. The true aster—the starwort or Michaelmas daisy—is perennial. The former, in popular parlance, is non-herbaceous, the latter is truly herbaceous.

Coming to the name, there is no doubt that it is the perennial which has the better claim to be called aster. It is far and away the older plant in British gardens. It came to us in the sixteenth century, whereas the popular annual did not arrive until the eighteenth. The word *aster* comes from star, and when we look at the beautiful double asters grown nowadays we wonder how the name came into being in association with such a flower. Then we recollect that when it first came to us it was not double at all, but single, and that we have doubled it since. With our interest aroused, we "look into things." We find that the real name of our plant is *callistephus sinensis*, and that we can get seed of the original plant. We buy it, grow it, and see at once the "star" association. Our forebears found *callistephus sinensis* rather too big a handful for them, so they called the mauve flower which had come to us from the celestial empire the China aster. The China aster it has remained ever since, and the China aster it will be to the end of the chapter.

When the aster lover studies his flower he finds that the florists have given him quite a large number of sections. For instance, there is the quilled, which has rolled florets; there is the pæony-flowered, which has incurved florets; there is the Victoria, which has

recurved florets; there is the comet, which has broad, flat florets; and there is the ostrich plume, which has loose, feathery masses of florets. Thus, a collection of different types of China asters reveals types so different that it might be made up of distinct plants. Nor are these the only sections. There is a valuable one called the dwarf chrysanthemum-flowered, and another called the dwarf bouquet. The latter is a very short, close grower, and consequently comes in useful for edgings or pots.

The most modern section of the China aster is the ostrich plume, and it is the best for flower-gardening, because of its graceful habit. It is loose, but not straggly, free-branching and free-blooming. The flowers are light, fleecy masses. It is a glorious plant for beds, or for colour effects in borders.

The great value of the China asters lies in the fact that you can grow them as a reserve, and plant them out, or pot them, at almost any stage—even when they are in bud. Thus, if you have some late tulips flowering on into early summer, all that you have to do is to bring a few boxes of young asters quietly along, and you have a supply of splendid material to take the place of the bulbs when they at last terminate their brilliant career. Really, every flower gardener ought to have a reserve of China asters, whether he foresees a specific use for them or not. The seed costs only a few pence, and the culture is of the simplest. April is early enough to sow, and no hot-bed is wanted, the seed germinating quite readily in a greenhouse or frame. After the end of the month it may be sown in the open garden, like ordinary hardy annuals. What the gardener terms "pricking off"—that is, transferring the seedlings from the seed-pan to boxes—ought to be done before the little plants

get crowded, and they ought to have abundance of air. They have an enemy in the form of a small black fly, which quickly spoils them if it is not kept in check. The remedy is to buy half a pound of quassia chips from a chemist, put a handful in a large bowl of water at night, and syringe the liquid over the asters next day. It should be used before the fly spreads very much, as a preventive.

ZONAL GERANIUMS.—In one of her delightful books on gardening Miss Gertrude Jekyll tells of the astonishment, not unmingled with reproach, which was shown by some visitors to her garden when they discovered Zonal Geraniums there. (By the way, it is important to use the word "zonal" in connection with the tender geranium, in order to distinguish it from the true, or hardy, geranium.) The zonal geranium is the head and front of the hated bedding system. Take it away, and there is no bedding system. But indubitably Miss Jekyll was right in declining to deny herself the use of a particular plant on no other grounds than that it stands for a system. You may use the plant without swallowing the system. It is easy to work up a feeling of intense loathing for the bedding system, but it is very hard to feel a whole-hearted detestation for a geranium. You might as well try to hate a sparrow because it pulls up your seedlings and bullies your pet swallows. There is something irresistibly cheerful about both geraniums and sparrows. You breathe destruction upon them one moment, and you forgive them the next.

In the summer of 1907 the writer contemplated a dry bank in a new garden which he was forming. The peculiar position, and the impending hot weather (which, however, did not come until September), forced him to the conclusion that zonal geraniums were the plants to

meet the demands of the case. He accordingly resolved to brave the rage and horror of flower-loving visitors, and plant zonal geraniums. Not only did these accommodating plants settle down to the position in the most cheerful way, but they actually kept on flowering uninterruptedly until Christmas Day. It was not until the keen frosts of the first week of 1908 that they finally went off duty.

We really must keep a corner of our hearts open for the brave old zonal. We need no more refuse to use it because it enslaved some silly people in years gone by than we need decline to admit any value in alcoholic drinks because some people take too much of them. If some one objects that the plant gives a great deal of trouble the reply is made: Only if you propagate it, and winter it. That is where the mistake is made. Young zonal geraniums are a nuisance in spring, because they take up a great deal of room under glass, and are too tender to be planted out before the middle of May. They are soft and sappy. But why worry over raising a stock at all, when you can buy cartloads at any florist's nearly as cheaply as you can buy faggots? As the plants get older, and more woody, they get hardier, and will stand several degrees of frost. You can cut back these old plants, top and roots alike, in autumn, if you wish, winter them in a cellar, and plant them out again. They are rather "leggy," but that does not matter much, because you can plant them in a sloping position. Paul Crampel is one of the best of the zonals; its colour is a rich shade of crimson, reminding one of the old Henry Jacoby, which it has superseded.

Ivy-Leaved Geraniums.—Plenty of people tolerate ivy-leaved geraniums who will not hear of zonals. They are certainly very bright plants, and they come in for a

variety of purposes, such as for filling vases and window-boxes, and covering banks. If you find yourself with an area of garden to cover in summer, and you have no reserve of asters, buy some strong plants of good ivy-leaved geraniums like Madame Crousse, Isadore Féral, and La Florifère (varieties of pronounced trailing habit), peg the shoots down as they grow, and your ground will soon be covered. Varieties with fine flowers, suitable for vases or pots, are Achievement, salmon-pink; Jeanne d'Arc, white, shaded with lavender; Ryecroft Surprise, salmon-pink; Souvenir de Charles Turner, deep pink; and Masterpiece, deep crimson. The last is single, the others are double.

TEN-WEEK STOCKS.—These old-time flowers will never lose their hold on flower lovers; their intrinsic merits are too strong. A good "strain" will yield a large proportion of double flowers, and a considerable range of colours, all dowered with the charm of delicious perfume. Puzzled folk often wonder how it is that seedsmen contrive to get seventy or eighty per cent. of their stocks double, considering that they have to save all their seed from single flowers. Well, there are singles *and* singles. Some single stocks will yield nothing but single-producing seed; other single stocks will yield nearly all double-producing seed. You may ask the florist to tell you how he distinguishes between the two if you like, but do not be surprised if he suddenly grows evasive, and changes the subject to turbine engines. It is a way he has. Culture has not much, if anything, to do with doubleness; it is a question of "strain." That is why it is important to buy stocks from a seedsman, and not from the nearest hay-merchant.

The ten-week stocks have been raised from an annual form of the Brompton stock, called *Matthiola incana*

annua. The Brompton (*incana*) is a biennial, and so is the Queen, which is supposed to be a form of the Brompton. The intermediate stock (of which the East Lothian and the Emperor are forms) is generally kept for pot culture, being sown in spring to flower in late summer and autumn, and in summer to flower the following spring. The night-scented stock, a little weedy, single form, is also a Matthiola (*bicornis*) and, like the ten-week stock, is an annual. It is of no beauty, but its perfume at night is powerful and delicious.

The ten-week stocks have received the most attention from florists, and there are now many colours. One can buy both stocks and China asters either in mixture or in collections of from six to twelve separate colours. If one is going to make beds of them, one should buy collections, because the different colours can be grown separately, and utilised at will. The majority of flower lovers have a special liking for white ten-weeks. There is one called Princess Alice, a large-flowered, branching variety, which is particularly beautiful. A charming primrose variety is known as Princess May. It is dwarf, but with large flowers, and is wallflower-leaved. Both of these sweet ladies ought to be bought separately. Mixtures can be had of two well-defined strains, the Dwarf German and the Giant Perfection. In both, the flowers are large, but one is much lower in growth than the other, and more suitable for small gardens.

The ten-week stocks come from seed as readily as asters, and may be treated in the same way. The black fly does not worry them, and as a matter of fact they give no trouble, only requiring plenty of room, and abundance of air, to thrive. Damping off, which causes heavy losses among seedlings every year, is entirely due to excessive watering and insufficient air. In view of

the fact that there is always a certain percentage of singles in a bed of stocks, which cannot be distinguished from the doubles in the early stages, it is wise to plant fairly close—about nine inches apart—so that if any singles show later they can be drawn out without leaving the bed too bare.

PANSIES.—We cannot help loving this little flower, so richly painted, and so sweet. Yet we cannot utilise it in any decorative sense, like we can pæonies and begonias. If there is one flower which it is pardonable to specialise—to grow in a quiet, cool bed, and visit often for the sake of the pleasure derivable from studying the beautiful markings of the blooms—it is the little pansy. Perhaps the flower has declined somewhat in popular favour these later years, but it is still supreme with the celebrated Scottish florists. They have many scores of varieties, with flowers three to four inches across, beautifully moulded, and painted with nearly all the colours of the kaleidoscope. They have two great sections, called respectively Show and Fancy. The latter gives the finest and the most richly-coloured flowers. There is a strain called Odier's Blotched, of which one can buy seed, that gives very fine flowers. The Peacock is also a fine and beautiful pansy, which comes true from seed. Pansies love a cool, but not heavily shaded, place, and a deep, moist, holding soil. They can be grown well in sandy soil if abundance of cow manure is added, and if water and liquid manure, with a mulching of short manure or cocoa-nut fibre refuse over the surface, are provided in dry weather. They are easily propagated by cuttings in autumn.

VIOLAS.—If the pansies have declined as garden flowers, it is probably because their sisters, the violas, have advanced. There is not room for both in every

garden, and thousands of people grow violas in preference to pansies because they are better for beds and borders. The pansies have derived from the viola, and excel their parent in beauty of bloom, but they are weak and straggling growers, whereas the violas are compact and tufty. The pansy is the specialist's flower; the viola is everybody's flower. The former sells in dozens, the latter in thousands. Trade florists did most of the work of improving the viola as a garden flower during the last fifteen years of the nineteenth century; consequently, although the plant is a very old one botanically considered, it is quite a modern one from the garden point of view. It is valuable for carpeting the ground under tall plants. Beds of standard roses, for example, are relieved of their bareness by violas, and are rendered bright and interesting. It is scarcely necessary to say that they also make beautiful edgings to beds and borders. Although they bloom so freely as to cover themselves with flowers, they do not readily wear away if the soil is well enriched, and is kept moist by watering and mulching. Constant cutting also tends to keep them in bloom. Occasionally the whole of the flowers may be clipped off, like those of sweet peas, to give them a rest, and a chance of making fresh growth, which will very soon come into bloom in its turn. Archie Grant, violet blue; Rolph, bright blue; Primrose Dame, yellow; Goldfinch, blue and yellow; J. B. Riding, mauve; Wm. Neil, lilac; Councillor Waters, crimson; Countess of Hopetoun, white; and Bronze Prince, bronze, are good sorts. Propagate by cuttings in autumn.

INDIAN PINKS.—Like Brompton stocks, foxgloves, Canterbury bells, and sweet-williams these are biennials, and in the ordinary way they should be sown in the early summer of one year to bloom the next. But the

ordinary way is not the best way. The best way is to treat them as annuals—that is, to sow them and flower them the same year, then get rid of them, as though they were godetias, or clarkias. The trouble is considerably less, and the result in bloom is the same, except that it may come a little later. A shilling will give you a good bed of Indian pinks, and it will not be in the least like any other bed in the garden. If a little too flat for your taste dot a few *gaillardias* in it. These are great brown and orange flowers, and they make a quaint and interesting association when put among pinks. The kind of Indian pink known as Heddewig's (*dianthus chinensis Heddewigii*) is perhaps the best to grow. To get flowers early sow in a warm greenhouse in February, and keep the seedlings near the glass, then harden them in a frame, and plant them out early in May. Later bloom can be got by sowing in a frame in March.

THE LACE FLOWER.—There is a tendency nowadays to arrange cut flowers with their own foliage, and consequently fern and asparagus are not so commonly used as they were once upon a time. But many people think that a buttonhole rose is set off better by a bit of maidenhair than by one of its own leaves. And they think that a bunch of cut sweet peas looks better if sprays of the lace flower (*gypsophila paniculata*) are mixed in with it than if it is arranged with its own foliage. The writer can hardly subscribe to this with any enthusiasm, but he is free to admit that if anything could set off sweet peas better than sweet pea leafage it would be *gypsophila*. But really the plant is worth growing for itself. In good soil it makes a large, fleecy, gauzy bush, and looks beautiful in a border. A hardy perennial, it nevertheless blooms the same year as sown if put in early—treated, in fact, like the Indian pink.

HONESTY.—We hear much of the honesty (*lunaria biennis*) for winter decoration, its white, transparent seed pods looking well in vases, either alone or mixed with the scarlet berries or orange calyces of the winter cherries (*solanum capsicastrum* and *Physalis Franchetii*). But the plant is well worth growing for its own sake, especially in the wild garden, where it will seed itself, and come up strongly year after year. It makes a beautiful bush, and covers itself with bright red flowers in late spring. Rabbits do not seem to touch it, anyway it flourished with the writer in an unwired portion of a garden much frequented by these hungry animals. The soil was stiff, cool clay, and the honesty enjoyed it. It liked shade too, without doubt, because it came much more strongly and persistently among the trees than in the unshaded parts of the garden. Remember that honesty can be grown from seed, which is very cheap, as readily as sweet-williams.

MARIGOLDS.—Are these old favourites as popular as they used to be, or have they declined a little, like the verbenas and the pansies? The writer is inclined to think that they have lost ground somewhat in the South, but have held their own in the North. The Scottish florists are tenacious fellows. There is a lot of the tough old covenanting spirit left in them. They are faithful to their old traditions and their old flowers. It wants a little tenacity, one would think, to cling to so garish a flower as the African marigold, the orange-coloured variety in particular. It simply stares you out of countenance—gives you eyeache and headache. The lemon-coloured is not quite so aggressive, as the tone is softer. The French marigolds are a different order altogether. The flowers are much smaller, and the colouring is not so vivid. The yellow ground is striped or barred with

brown. They are really pretty and refined flowers. Like the Africans, they thrive under the same treatment as stocks and asters. There is a very pretty little plant related to the marigolds called *tagetes signata pumila*. It is dwarf and bushy, and it clothes itself in small yellow blossoms, making very bright patches of cheerful colour. This little plant does well either in the border or on the rockwork.

MIGNONETTE.—There are now a considerable number of varieties of mignonette, and although there is none sweeter than the common (*reseda odorata*), there are several which are brighter in colour. For instance, there is the red variety, Machet, and there is the yellow, New Golden Queen. The latter is a charming sort, very bright and sweet. The writer sowed some patches of it on a bank of rather poor limestone earth, and had delicious clumps. This strengthened his conviction that mignonette cares very little for rich soil, but is fond of chalk. On stiff, damp soils mortar rubbish is much better than manure. One gets finer spikes of bloom, and rich perfume, when it is used.

ANNUAL PHLOXES.—The varieties of *phlox drummondi*, with their beautiful flowers, are growing in favour, and quite taking the place of verbenas. The *grandiflora* strain is the best so far as size of bloom is concerned, and its only defect is that it is inclined to be straggly. In this it is no worse, of course, than the verbena itself, but it is not so easily pegged down. Fortunately it is possible to get a dwarf strain, giving almost as good a range of colours as the *grandiflora*, although with rather smaller flowers. This is the *nana compacta* strain. Those who want to get the greatest amount of enjoyment out of annual phloxes should buy collections of six or twelve distinct. These facilitate colour grouping. Every flower

gardener must take annual phloxes into account; they are as good in their way as the perennials, and come readily from seed sown in frames in March, or outside in April.

PETUNIAS.—This plant may have suffered a little from the coldness with which all bedding plants are surveyed by the cultured flower lover, but if the pigeon-holes of seed-merchants were examined at the beginning of the seed season—say on New Year's Day—and again at the end of it—say on May Day—striking evidence would be given of the fact that the plant is still largely grown. Or if it is not largely grown, where goes the seed? Do people buy it, with the intention of growing petunias, and then, recollecting themselves in time, surreptitiously throw it away? Hardly that. Seeds are sown, plants are raised, and in thousands of gardens of no particular repute, but still gardens which afford pleasure to those who own them, the petunias flourish. Look, too, at the thousands of gorged boxes sold in the markets. The little plants are already in bloom. Like Dr. Chillip's baby, they are nearly all head, and they loll their flowers over the edges of the boxes as that interesting infant lolled its head over its nurse's shoulder. One can buy seed of garden petunias in mixed or separate classes. The latter come practically true from seed, so that colour grouping may be practised if desired. One can get a pretty striped flower, the groundwork cherry-red, the flakes white; a white self, a rose self, a pink self, and other cheerful colours. The large double fringed petunias are not suitable for the garden, and should be grown in pots. They are very useful plants for the unheated greenhouse, because they grow freely without skilled attention, and remain in flower a long time. The flowers of the best modern strains are of huge size, and heavily fringed.

The bedding varieties need a little repression to keep them within bounds, as they are inclined to straggle. Rich soil is not to be favoured, because it increases the roving tendencies of the plant. Garden soil has to be very thin and poor to need manuring for petunias. We can raise our plants quite readily by sowing under glass in March, with gentle warmth; or in a frame without artificial heat, in April; and we can plant them out in May.

Coloured Primroses, Polyanthuses, and Auriculas.—We have in these a glorious cousinship of Spring flowers. There are some plants which grow to a certain stage, bloom at a particular season, and die away; but these lovely dwarflets follow no strict laws of development, *floraison*, and decay. Their main flowering season is, of course, the Spring, but if the weather is mild they bloom more or less the whole of the Autumn and Winter, without letting the grower suffer when the proper time arrives. Growing a little during all mild spells, they suspend motion during frosty weather; and then, when April brings warmth of sun and invigorating showers, they start in real earnest, and spread rapidly until the end of May, flowering all the time as hard as they grow. The rapidity of development of the yellow primroses, in the cool clays of some of the Kentish woodlands, is such as to approach the incredible; they spread almost as fast as mushrooms, and with cool soil in gardens the coloured varieties will do the same. We cannot make too much of these exquisite blossoms of spring. They are beautiful for making warm ground colour in beds of bulbs, beautiful for edgings, beautiful for the woodland. When their bloom is over they can be lifted if desired, shifted to a reserve plot, and kept there till autumn, then used again; but they come so readily and quickly from

A CLUMP OF MADONNA LILIES (LILIUM CANDIDUM).

DOUBLE COLOURED PRIMROSES.

seed that there is no reason why fresh young stock should not be raised annually. They can be sown out of doors in early summer, and treated very much like wallflowers.

Primroses and polyanthuses differ in the fact that the former bear one flower on a stem, and the latter several. The primroses have the largest flowers and the richest colours, but the polyanthuses are very beautiful, especially, perhaps, the varieties with white grounds, and eyes of primrose, yellow, and orange. Seed of the lovely Munstead strain, developed by that gifted flower lover, Miss Gertrude Jekyll, is now procurable. Dean's celebrated strains are difficult to get nowadays, as the grand old florist who raised them has passed away. Storrie's Scottish strains are very fine—none better, indeed. The writer has grown them, and proved their worth. Primroses, Polyanthuses, and Auriculas are all good alike. There is a fine dark blue primrose offered in the catalogues which comes true from seed. It is a precious thing, and should be grown.

Poppies.—We have glanced at these in our Colour chapter, but we may come to them again. Why, first of all, the continued nourishment of the delusion that poppies will not endure being transplanted? Of course they will—at all events, in a cool soil. Perhaps if they were moved from a crowded seed-bed to a sun-scorched patch of impoverished, dried-out sand they would resent it; what plant would not? It is not always necessary to transplant poppies; on the contrary, it is generally best to sow them where they are to bloom; but when one has a small quantity of seed of a special strain or variety which one wants to make the most of, one likes to prepare a special bed for it, and give it particular attention, so as to get a high germinating percentage.

Then, if the plants are thinly grown they can be taken up separately, with moist soil clinging to their roots, and shifted to the positions in which they are desired to bloom. The Shirleys are very beautiful, and a drift of them forms a brilliant and shimmering sheet of colour, but they are not very lasting. A few selected doubles, from mixed seed of carnation-flowered or pæony-flowered, will be valuable. They throw up flower stems two feet long, and have large, brilliantly coloured flowers. One can buy seed of maroon, mauve, pink, scarlet, and white separately. Then there is the Mikado, white and pink, which is a good plant. It must be remembered, in favour of poppies, that the foliage alone is handsome. The poppies seed profusely, and sow themselves, so that it is possible to get too many of inferior sorts. These should be pulled out directly the flowers fade to prevent seed forming. The best plants can be marked, and the seeds allowed to ripen. All the annual poppies may be sown out of doors in spring, and will flourish with the same treatment as clarkias and the like.

A Flower for Hot Banks.—A floral covering for a hot bank or border is not easily procured. The majority of plants like sunshine, but they find it too much for them unless they can get roots well down into a cool, moist stratum of soil. There is, however, a little plant, the *portulaca*, which thrives best in roasting sunshine, and will even tolerate thin soil. It is true that it is wise to give it a little special attention, in the way of preparing fine soil, keeping it moist, and thinning, where the seedlings are coming crowded, in the early stages of growth; but afterwards the plants will look after themselves. Nor is the *portulaca* a commonplace plant. Though lowly, it is very beautiful. The colours are varied, brilliant, and sparkling. It covers

the ground with a carpet of exquisite little flowers, which glisten cheerfully in the sun, and win the heart of every grower. There are both single and double kinds, mixed seed of which can be bought in spring, and sown out of doors about the middle of April.

SWEET ROCKET.—There are several flowers grown in gardens under the popular name of "rockets." Thus there is the double yellow rocket, which is a form of *barbarea vulgaris;* there is the rocket candytuft; and there is the dyer's rocket, *reseda luteola.* But the old favourite which we call the "sweet rocket," a perennial plant, with purple, rose, or white flowers, borne on stems two or three feet high in summer, and fragrant in the evening, is known to botanists as *hesperis matronalis.* This good old border rocket is often called the "dame's rocket," and sometimes the "damask violet." There is a double variety of it. It will grow in most places, and in most soils. We must not overlook it in the attention which we give to special things. If we have a border which we make a home for flowers grown for their individual interest rather than for their colour effect, we must make room for the sweet rocket in it. Here we shall have honesty, scabious, sweet sultan, love-in-a-mist (particularly the Miss Gertrude Jekyll variety), and many other quaint things, both annual and perennial. The rocket is easily raised from seed sown out of doors in early summer.

SALPIGLOSSIS.—This beautiful and distinct flower has no popular name, and perhaps suffers thereby with the crowd, although the educated flower lover is hardly likely to pass it by because its name is somewhat formidable. We have nothing else in the garden which gives us quite the form and colour of this exquisitely marked plant. The flowers are of the shape of a widely

expanded funnel, and from two to three inches across from tip to tip. The feature of the coloration is a series of metallic shades, veined or pencilled with gold. One may get a blue, a purple, or a crimson, all delicately lined with yellow. The salpiglossis is a graceful plant, its flower stems curving over. Light and loose, yet brilliantly coloured, it makes a charming "dot" plant for beds planted with a low, rather stiff groundwork, such as dwarf asters, violas, or begonias. It has a very quaint effect, too, as a cut flower, if arranged lightly in Benares ware. Let not the flower lover fear to try it, but let him sow it with his asters, his stocks, his petunias, and his annual phloxes in the spring. He will flower it in July or August.

SWEET SCABIOUS AND SWEET SULTAN.—The lover of perfumed flowers will never pass by either of these deliciously scented plants, although they are not distinguished for great beauty. There is one beautiful scabious, the lovely blue perennial species *caucasica*, but this is not fragrant. The sweet varieties may be had in both tall and dwarf strains, the former growing about two feet high, and the latter one foot. They may be bought in mixed or separate colours. The most common is purple; a white, a pink, and a mauve, all sweet, can be got also. They come from seed as readily as nasturtiums if sown out of doors in spring. The sweet sultan has the look of a gigantic cornflower, except in colour, and, indeed, it belongs to the same genus as the cornflower—*centaurea*. One can get separate seeds of purple, white, and yellow varieties. The plants grow and flower freely when given the ordinary treatment of hardy annuals, and they should be grown largely, because they are sure to be in great demand for cutting, not merely because of their delightful perfume, but

because they last so long in water. Quite different in odour, but equally pleasant, the scabious and the sultan are flowers for every garden.

VERBENAS.—Florists speak of the verbena as a dead flower. That is because people no longer specialise it, and pay high prices for new varieties sold under different names, and cultivate it in pots under glass. The writer is old enough to remember seeing a large house full of beautifully trained plants in a famous nursery, but he never expects to see it again. There are, however, at a moderate computation, twice as many verbenas grown now as there were in the days when it was a florist's pet. The difference is that they are seedlings, and grown out of doors (except in the early days of seedlinghood). The florists did the verbena a great disservice when they gave it the reputation of being a delicate, mildewy plant. It may have been mildewy under the conditions in which they grew it, but it is not so when raised from seed. Although a perennial, it wants treating like a snapdragon—sown in gentle heat in February, thinned, pricked off, hardened in a frame, and planted out in May. Plants thus treated will be in full bloom in July, and they will keep on growing and flowering for many weeks. One can buy mixed seed, or separate colours, such as purple, blue, scarlet, pink and white, and striped. Many of the dark flowers have a white eye. It is not wise to give too rich a soil, or the plants will straggle; in any case it may be found necessary to peg them down. Seedsmen offer a very pretty and distinct verbena named *venosa*. It grows barely a foot high, and has a neat, compact habit, consequently it is often used for borders. The flowers are purplish red. It is a mistake to winter verbenas, and propagate from cuttings. Fresh seedling plants ought to be raised every year.

VIOLETS.—The frame culture of violets gives us flowers of the fine florist's varieties, such as Princess of Wales, Czar, La France, Comte de Brazza, Marie Louise, and Neapolitan, during mild weather from Autumn to Spring; but perhaps we shall naturalise a few of the sweet old common violet. There is none more fragrant. When it gets settled down, it spreads every year. It likes shade, of course, and a cool soil, not dry, sunny spots. The florist's violets give finer flowers than the native, and they are very sweet, none more so than the huge single Princess of Wales, and the fine double Marie Louise. When growing a collection of violets one finds that some varieties throw out runners, and others tufty, upright side shoots. The former are best propagated by the runners, like strawberries, the latter by division. In both cases the propagation may be effected in Spring, and the resulting plants put into a piece of deep, cool, well-manured soil. They will grow out, and make fine clumps for lifting and putting into nine inches of rich, loamy soil, spread over thirty inches of leaves and manure, in a frame in October.

WALLFLOWERS.—Our seedsmen have given us some splendid strains of the fragrant wallflower. In addition to the well-known yellow, Belvoir Castle, the Blood Red, and the brown Harbinger, we can get chestnut, maroon, purple, ruby, chamois, lemon, apricot, ivory, and crimson, all in separate packets. These are all single. In addition there is the double German, a fine plant, with flowers like great stocks, and very sweet; and the annual, a brown-coloured, perfumed flower that blooms in summer from spring-sown seed. The "Old Castle" wallflower will thrive on dry banks and walls. The wallflowers are such splendid plants for spring garden-

ing, and so useful for cutting, that it is worth while to give them special treatment, sowing them thinly in May, and transplanting them from the seed-bed to a nursery plot, so that they may strengthen and harden throughout the summer, and be in good condition for planting out in October. They must be protected from rabbits, or they will be eaten out.

CHAPTER XI

GARDEN AUXILIARIES

THE maker of a new garden has many uncomfortable moments. The work he is doing seems satisfactory enough until he visits the finished gardens of friends, and then he has a sense of "rawness" when he sees his own again. The trees he has put in seem to be mere sticks; the shrubs, weeds; the rockeries, roadside stone-heaps. Everything appears to be crude and bare. There is a great feeling of emptiness. The place seems to be exposed to every eye.

Can anything be done to remedy this? Are there any temporary features which can be pressed into service? Can we construct some kind of screen to serve until the trees and shrubs are thick enough to fulfil their purpose? And can we do anything which will help to relieve the bareness of the house until such time as the creepers that we have planted cover it? These are practical questions, bearing on real difficulties, and we may well devote a little consideration to them.

TRELLIS-WORK.—The suburban gardener finds much value in expanding trellis-work. Party walls and fences are rarely high enough to give him the seclusion that he loves, and inasmuch as they are the property of landlord or neighbour, they cannot be reconstructed. But there is rarely any objection to a tenant adding to them if he thinks fit to do so. He does not, as a rule, care to

spend much; and he does not want anything very substantial. He wants something which costs very little, and which will serve as a support for creepers, and a little more. Expanding trellis-work answers his requirements admirably. In the first place, the cost is small. Pieces which will pull out to a length of twelve feet, with a height of three feet, and a "mesh" of about four inches, cost about three shillings each, unpainted. The twelve feet can be extended to eighteen or more by pulling the trellis farther out; it merely means reducing the height and enlarging the "mesh."

Let us suppose that the garden-maker has a certain stretch of exposed garden which he does not wish to shut in with a permanent wall or fence, but to block with trees and shrubs. He plants, but, unable to put in very large specimens on account of cost, or unwilling to run the risk of them in consequence of having a dry site and poor soil, becomes impatient when he considers how long he will have to wait before he gets his screen sufficiently thick and high. Expanding trellis-work is the thing for him. If it is neatly erected, finished off with a top rail, painted green or oak colour, and at once planted with quick-growing things, it will not look obtrusive, and will make a very serviceable screen.

Some persons object to trellis-work for country gardens, on the ground that it is not natural enough. Well, a wall is not "natural," or a fence either. So long as trellis-work is not stuck up all over the garden, and left bare, it is not objectionable. The writer has used it extensively within certain limits. It has been put into a particular position to serve a special purpose, and directly that has been accomplished it has been put somewhere else. A beautiful screen can be formed in

a few weeks by putting up trellis-work, and planting strong sweet peas at the base.

A "cosy corner" can be formed in a garden in the same way as a boundary. Perhaps the owner wants to form a little special enclosure not far from the house—a pretty, flowery, grassy spot where tea can be taken in fine weather, and where spreading garden-chairs afford the necessary convenience for quiet, comfortable reading. Again trellis-work comes in. It must not be merely put up, of course, and left. To do that means to make a yard. There must be a border along it, which can be filled with quick-growing plants; it then becomes a garden. Ivy and virginian creeper will ramble along trellis-work. Flowering shrubs, such as the beautiful yellow *kerria japonica*, can be planted against it. Canary creeper, nasturtiums, and convolvuluses can be trained along it. You may cover it, if you like, with scarlet runners. Decidedly trellis-work is useful.

FLOWER TUBS.—Tubs are not, as a rule, beautiful objects, however serviceable under water pipes, but they can be made use of in new gardens. The writer keeps his paraffin-oil casks instead of returning them and receiving the allowance on them from the dealer, and has them sawn in halves, burnt out with shavings, and painted green. When put in position and filled with soil (you must take the soil to the tub, not the tub to the soil, because of the weight in shifting back again) they become very useful receptacles for free-growing, free-blooming plants like zonal and ivy-leaved geraniums and marguerites. There are many places in new gardens, and near new houses, where these flower tubs would be serviceable, detracting from the rawness of bare ground and new masonry. For instance, one could be stood

at each side of the top of a flight of steps. A pair might be stood near the entrance of the house. A few pieces of rock can be put round the base to take off the stiffness, or they may be covered with virgin cork.

STONE VASES.—Stone vases cannot be dotted about a garden indiscriminately, but they can be used at the top of flights of steps or beside porches. Plants of loose, graceful habit are desirable for them. Fuchsias and marguerites are excellent. For hanging down there are ivy-leaved geraniums, and tropæolums of the *lobbianum* class.

WINDOW BOXES.—There are greater possibilities in window boxes than most folk wot of. Of course, a flower lover of artistic tastes would rather have his house bare than decorated with vivid green boxes filled with furious red and frantic yellow flowers. The very sight of them on other people's houses makes him want to order up a 4.7 gun, and blow the whole place into fragments. But harmonies in green, red, and yellow are no more necessary to window boxes than to borders. We can have the daintiest of boxes and the daintiest of flowers if we only like to take the trouble.

Facing a plain deal box with strips of virgin cork is the window gardener's first device for imparting a rustic appearance. Well, this will be better than nothing. You buy the cork through the seedsman, or through the firm which advertises horticultural sundries in the gardening papers, and you simply attach it to the front of the box with short nails.

Another plan is to tack a line of maple twigs all round the edges of the box, and a second line three inches within it, put short diagonal pieces in the space between, and fasten an inverted acorn cup in each

angle. A central design in the form of a diamond, formed of maple twigs, and with inverted acorn cups at each point, will complete it.

Small larch branches can be used to face the front of a box. They need not be all of the same length, thus forming a straight line, but may form a series of extensions from the side to the centre.

Another plan is to panel the front of a box with handsome tiles. An economical amateur made a cheap variant on this by substituting neat pieces of linoleum for the tiles—a "drollery" that escaped discovery for a long time, inasmuch as the "tiles" were partly hidden by the plants.

The exact size of a window box may turn upon two things—(1) the size of the sill, (2) whether a fixture or to be moved. With a large sill and a permanent fixture a window-box may be made as large as you like. In the case of a small sill, or of a box which has to be moved, a size of thirty inches long, by nine inches wide and deep, will probably be large enough. It may be made of three-quarter-inch deal. A strip should be fastened to the bottom at each end, in order to keep it from contact with the sill. Holes will be necessary to permit of the escape of superfluous water, as if moisture becomes stagnant in the box the plants will not thrive. About a dozen should be made in the bottom of a box of the size named, and they are easily bored through with a red-hot kitchen poker, especially if the way is paved with a gimlet.

If desired, a skeleton box can be made. This consists of two ends the same width as the sill, attached to the house wall, and connected by top and bottom strips. There are no sides, and there is no bottom. The front may be decorated with virgin cork, or tiles, or anything

else that the owner fancies. The "skeleton" box really serves the purpose of a guard for plants in pots, which are stood on the sill between the frame and the window sash. An obvious advantage of pot over box plants is that they can be changed frequently if desired. The flower lover is not tied to one or two arrangements.

If it is desired to impart irregularity of outline to an ordinary window box, the end can be gained by forming an arch with a piece of bamboo, the points of which are pressed into the soil at the ends of the box after the bamboo has been bent into a semicircle. Canary creeper or some other pretty plant can be trained over the arch. Or the arch can be made with a narrow piece of galvanised wire netting. A box which the writer once saw had this netting-arch feature, combined with a somewhat unusual method of ornamenting the front of the box. It was covered with virgin cork, out of which pockets had been formed large enough to hold small flower-pots. The pockets were furnished with small bulbs in spring, and with trailing plants like creeping jenny, musk, and *tradescantia* in summer.

The window box is generally only a summer ornament. The dwelling is treated as though it were a houseboat. This should not be. The box can be filled with neat little conifers, such as cypresses, for the winter; or it can be planted with bulbs, such as daffodils, tulips, snowdrops, and scillas, in autumn, for spring blooming. All of these can be taken out and planted in a spare corner of the garden in spring. For summer bloom we ought to draw on free, graceful, informal plants like fuchsias, marguerites, ivy-leaved geraniums, petunias, and tuberous begonias, but we ought not to mix all these together in one box, or it will be overcrowded. Fuchsias alternated with mar-

guerites, with a front of violas, and scarlet tropæolums dotted between the latter to droop over the front, form a very pleasing combination. And white marguerites, interspersed with the tall spikes of the cheap scarlet *gladiolus brenchleyensis*, look extremely well. In the case of a shaded box the plants chiefly utilised might be begonias and monkey flowers (*mimuluses*), with a trailing front of creeping jenny or *tradescantia*. Asters and stocks may also be grown in window boxes if desired.

COVERING HOUSE WALLS QUICKLY. — Just as the garden-maker likes to fill his beds and borders quickly, so he likes to see his house covered with foliage and flowers with the least possible delay. Often he asks too much; he wants the walls clothed immediately, and he wants them covered with a small-leaved ivy or with wistaria. In a contest amongst creepers for slowness of growth, one of these two plants would surely win. They might very well be called "crawlers" as well as creepers. They move with exasperating deliberation. Nor will the best of manure and soil stimulate them beyond a certain point. It is their nature to grow slowly, and they do it.

It really comes to this: if we want our walls clothed rapidly we must be prepared to make concessions as regards plants. We must forego small-leaved ivies altogether, because the best of them move slowly; but if an ivy of some sort is regarded as indispensable, a relatively strong and quick grower like the Irish must be chosen. This is a cheap kind, and nurserymen stock vigorous plants of it in pots, with four or five shoots ranging from three to six feet long, twined round a stake. Often the roots are bound so tightly round the pot that it is impossible to get the plants out,

and then the pots are simply smashed round the roots. Plants like these will cover a wall as quickly as any ivy can be expected to do.

Then there is the virginian creeper. In our chapter on Climbers we saw that Veitch's variety, known as *ampelopsis veitchii*, and also as *vitis inconstans*, is a much better plant than the common. It does not grow so vigorously, it is true, but it moves quickly in rich, moist soil. Moreover, it is a true "climber." It climbs almost as a steeplejack climbs. It "ladders" the wall as it goes, and the way in which it does this is both interesting and beautiful. Threads are thrown from the stems, the tips of which exude a kind of vegetable concrete, which attaches them so securely to the wall that they cannot be got away without breaking them by main force. Neat and close in growth, and very bright when it changes colour in autumn, Veitch's virginian creeper presents claims that cannot be passed over lightly.

The lower part of the walls can be covered quickly (in a few weeks, in fact) by attaching wooden or wire trellis-work and training quick-growing flowering plants, such as tropæolums, ivy-leaved geraniums, convolvuluses, and sweet peas, to it. If permanent plants were preferred, the white *clematis montana*, the double yellow *kerria japonica*, or one of the selected roses, honeysuckles, or jasmines named in a previous chapter could be planted.

CHAPTER XII

GARDEN ENEMIES

BEGINNERS are generally optimistic. Does any golf-novice doubt that, in the course of half-a-dozen lessons from a kind and courteous professional (who will be lost in wonder at his pupil's phenomenal progress), he will be able to drive a three-hundred-yard ball, lay approaches dead from any position, and hole out every time from any part of the green, whether stymied or not ?

Things have a happy way of going smoothly in our reflections on a new pastime. We look at it through rose-coloured glasses. Perhaps this is particularly the case with gardening. Nature does so much to help. We sow a few seeds, and behold ! we get beautiful and fragrant flowers. What could be more delightful ?

Yes, Nature is very good in many ways, but she is also a little trying. She not only thoughtfully seconds our efforts to grow plants, but she also sends along grubs, flies, and fungi to attack them. This is not so well, and we begin to doubt whether she is so entirely beneficent after all. Presently, when the onslaught of the grubs, flies, and fungi becomes so deadly as to counter-balance our efforts, we begin to feel seriously aggrieved and to wonder what it all means.

What it really does mean is a very big and absorbing question, much too large to be discussed in the present work. We can only consider a few practical features.

In the first place let us face the fact that, however well we garden, we shall have enemies to fight. The good gardener has fewer enemies than the bad, but no gardener ever escapes them altogether. It seems cruel to drag this skeleton to light. It would be so much easier and pleasanter to keep it in the cupboard, and persist in looking on gardening as all colour, and perfume, and sunshine. But we aspire to be practical, to deal with facts, to see things as they are.

To begin with, then, we recognise that we have enemies. Let us go a step further, and learn that they come in various ways—through the soil, through the air, perhaps with the plants and seeds which we buy. We cannot shut them out. We can fence against cattle, but not against caterpillars. Some of them, such as species of green fly (aphis), attack a great many different kinds of plants. Others concentrate on one particular plant. One enemy operates at the root, a second on the leaf, a third in the stem, a fourth on the flower.

We cannot deal with all the enemies of plants in a chapter, but we can pass a few of the most troublesome of them in review.

SLUGS AND SNAILS.—The slug is a terrible sinner, attacking a great many plants. While he has a special partiality for a tender young phlox or lettuce, he is also addicted to eating the young growths of herbaceous and rock plants. He will sally out when your finest iris is on the point of developing, eat the flower stem through near the base, and bring the whole structure to the ground in one deplorable ruin. The gentlest of human beings, if a gardener, loathes slugs. There are some gardens which are completely overrun with slugs and snails, generally old places, with a good deal of ivy or other cover. One way of reducing their numbers is to get

some lime fresh from a kiln, slack it with a little water, and dust it over the garden at night. (Operations against slugs must always be conducted at night, because the enemy is nocturnal in his habits.) This dusting must be repeated on other nights. A slug can exude slime, and throw off a caustic coating in time to save himself, but he cannot do so at frequent intervals. Another plan is to use lime water. This is made by putting a lump of lime about as big as a cocoanut in a pail of water, and letting it stand a few hours, then using the liquid with the lime in solution. Lime does not hurt plants, and it harasses, worries, and kills slugs. Another plan is to trap them with "grains" bought at a brewery, which may be placed in small heaps among plants which slugs are fond of, and examined at night by the aid of a lantern. All slugs captured can be dropped into a receptacle containing salt and water, where they will speedily shuffle off the mortal coil. Snails are not to be cleared off by lime dressings, and really there is no "short cut" with them. Hand picking is the best remedy. The "gleanings" can be disposed of by dropping them into brine.

BIRDS.—Public opinion is so sensitive on the score of birds that one hardly dare mention them in a chapter on enemies. Let the bird-loving reader stifle his rising wrath. The writer is himself a bird lover, and has not the remotest idea of advocating indiscriminate destruction. The gardener who has watched a thrush cracking a snail's shell on a stone, seen starlings feeding on crane flies, and observed tits dexterously picking off aphides, is not going to conduct a blind vendetta against birds. But thrush and blackbird, finch and sparrow, are very trying at times. They are enemies of various seedlings, peas, and fruit. The gardener who suffers from them need not fly to a gun. Tanned fish netting is

much more to the point. By spreading it over the crops the birds are kept away, without the disadvantage of their services being lost as snail and fly consumers. In the case of crops which cannot be netted, scares must be resorted to.

GREEN FLY (APHIS).—The green fly attacks many different kinds of plants, varying as widely as tulips, brussels sprouts, cinerarias, and roses. Its wide tastes, and its fecundity, would make it the most dangerous of garden enemies if it were not very easy to kill. Fortunately it has no great tenacity of life. Hot water, with an ounce of ordinary washing soda dissolved in each gallon, will destroy it. The temperature may be 150°—hot enough to demand a little protection for the hand when a syringe is used. Another remedy is to boil a pint of soft soap in a quart of soft water, stir in half a pint of paraffin oil, then turn the mixture into a tub containing five gallons of water, and work all up together by repeatedly filling a syringe from, and emptying it into, the tub. This may be syringed on to affected plants in the evening. A third remedy is to soak a handful of quassia chips in a gallon of water for a few hours, and syringe the bitter liquid on. In the case of plant houses it is wise to "vaporise" them about every three weeks during the growing season, whether insects are noticed or not. Richards's and West's vaporisers are very good in keeping houses free from insects.

BLACK FLY.—This aphis is very troublesome on asters, broad beans, peaches, and cherries. It can be kept under by using the soft soap and paraffin oil spray recommended in the preceding paragraph.

RED SPIDER.—This is a mite which attacks various crops, such as grape vines, gooseberries, scarlet runners, and violets. It is encouraged by very dry conditions.

Proper watering and vigorous syringing tend to keep it in subjection. The soft soap and paraffin oil wash, fortified by a handful of flowers of sulphur to the gallon, and applied hot, will destroy red spider.

WIREWORMS AND LEATHERJACKETS.—These pests are nearly always troublesome in land that has been under pasture. They have fed on the roots of the grass, and when the turf is removed they remain in the soil, desperately hungry, and willing to fasten on to almost any crop. Where feasible the ground may be compressed with a heavy roller. "Vaporite," a proprietary preparation manufactured by Strawsons, 71A Queen Victoria Street, London, E.C., may be forked in. In the case of special plants, such as choice carnations, baits of potato or carrot should be embedded near them to draw off the pests. The cockchafer grub may be attacked in the same way.

ROSE CATERPILLAR.—A small grub attacks roses in late spring. One observes that some of the leaves are curled up, and on untwisting them finds the caterpillar. Crushing all curled leaves is the best remedy.

EARWIGS are dealt with in connection with dahlias. See the General Index for the page reference.

ANTS are troublesome, less for the actual damage that they do than for the fact that they nurse aphides. If a nest can be found, boiling water should be poured in. If not, they may be trapped with raw bones, or with a sponge smeared with treacle.

LEAF-MINING MAGGOTS attack various plants, but none worse than marguerites and celery. The plants can be preserved if the affected leaves are squeezed between finger and thumb at the first sign of attack, and sprayed with the soft soap and paraffin oil wash.

VARIOUS FUNGOID PESTS.—The different fungi attack

many kinds of crop, such as rose, carnation, hollyhock, chrysanthemum, sweet and culinary peas, potatoes, and fruit trees. To deal with them all fully would fill a large volume. Let it suffice to mention three remedies. The first is dry flowers of sulphur, which may be dusted on plants attacked by mildew. The second is sulphide of potassium (liver of sulphur), of which an ounce may be dissolved in three gallons of water. The third is Bordeaux mixture, made by dissolving four ounces of sulphate of copper (bluestone) in a little water in a wooden vessel, slacking the same quantity of lime in another vessel, and stirring the two together in a tub containing two and a half gallons of water. The Bordeaux mixture may be tried in all cases of fungoid attack, spraying it on in as dewy a state as possible, so that it may adhere. If it should not prove effectual after a second application has been made the other wash could be tried.

In the case of all enemies, whether insect or fungoid, success turns upon attacking them directly they put in an appearance. What may be an easy task at the early stage of an attack becomes difficult or impossible at a later one.

PART III

GLASS HOUSES

CHAPTER I

PLANT HOUSES

THE prudent flower lover will never allow himself to fall under the tyranny of glass houses, still less under that most dangerous form, the conservatory. Modern flower-gardening tends to become more and more independent of glass, and some of the most beautiful flower gardens in the country have not so much as a single square, even in the form of a frame.

So far from agreeing that glass can be dispensed with for small places, but must be regarded as essential for large ones, the writer would take the view that it is in small establishments, where the area of ground is so limited as to afford very little scope for outdoor work, that glass houses meet the greatest want. They are certainly not necessary to successful gardening in places where there is a good deal of ground, unless forced grapes, peaches, strawberries, melons, flowers, and vegetables are wanted.

Let us sum it up in this way: Glass is not indispensable to flower-gardening, nor to fruit and vegetable production, unless we wish to grow tender plants, or to have crops out of their seasons. Does the reader want to have roses at Christmas, peaches in May, and grapes in July, all of his own growing? Does he want to have his dinner-table decorated with handsome foliage plants and flowers every day of the year? Does he want to

fill his beds and borders with home-grown zonal geraniums? Does he want to carry off first prize for Japanese chrysanthemums at the local show in November? Does he want gardenias, stephanotises, bouvardias, and other fragrant but tender favourites? If the answer to these questions is in the affirmative, and no difficulty about means arises, then glass houses shall be had.

We might summarise the different types of glass house as follows:—

(1) *The Conservatory.*—A house for preserving and displaying plants. Theoretically, the plants are grown in other houses until they arrive at the stage when they are most ornamental, and are then conveyed to the conservatory. The temperature of the structure must depend on the class of plant grown—whether greenhouse, intermediate, or stove.

(2) *The Greenhouse.*—A structure in which the winter temperature ranges from 40° to 50°. It is a house for growing plants in.

(3) *The Intermediate House.*—The temperature of this structure ranges from 50° to 60° in winter.

(4) *The Stove.*—What gardeners call the stove is what ordinary folk would call the hothouse. The winter temperature ranges from 60° to 70°.

It may be helpful to readers, as illustrative of the type of plant grown in the different houses, if the principal kinds are grouped. Those marked (*o*) are orchids. Those marked (*b*) are bulbs.

Greenhouse.	*Intermediate.*	*Stove.*
abutilon.	amaryllis.	allamanda.
acacia.	anthurium.	caladium.
arum lily.	begonia (winter).	(*o*) calanthe.
aspidistra.	bougainvillea.	cockscomb.
azalea.	bouvardia.	clerodendron.

Greenhouse.	*Intermediate.*	*Stove.*
balsam.	carnation (tree and American).	dipladenia.
calceolaria.	cacti (most).	eucharis.
camellia.	(*o*) cattleya.	gardenia.
campanula.	cestrum.	gesnera.
canna.	(*o*) cœlogyne.	hæmanthus.
chrysanthemum.	(*b*) crinum.	hibiscus.
cineraria.	croton.	impatiens.
clematis.	epacris.	ipomæa (some).
clivia.	exacum.	ixora.
cobæa.	heliotrope.	jacobinia.
coleus.	hoya.	jasmine (some).
cyclamen.	justicia.	lily of the valley (forced).
(*o*) cypripedium.	lapageria.	maranta.
cytisus.	(*o*) miltonia	nepenthes.
(*b*) daffodils.	rhododendron.	pancratium.
(*o*) dendrobium.	rose.	pandanus.
deutzia.	stephanotis.	poinsettia.
dracæna.	thunbergia.	(*o*) sophronitis.
erica.		torenia.
euphorbia.		
india-rubber plant.		
francoa.		
(*b*) freesia.		
fuchsia.		
geranium (zonal).		
gladiolus.		
gloxinia.		
helleborus (Christmas rose).		
(*b*) hyacinth.		
hydrangea.		
(*b*) ixia.		
(*b*) lachenalia.		
lilac.		
(*b*) lilium.		
(*o*) masdevallia.		
mignonette.		
musk.		
myrtle.		
(*b*) nerine.		
nerium (oleander).		
nicotiana (tobacco).		
nymphæa (water lily).		

Greenhouse.

(*a*) odontoglossum.
(*b*) ornithogalum.
orange.
petunia.
phyllocactus.
physalis (winter cherry).
plumbago capensis.
primula.
salvia.
schizanthus.
smilax
solanum (berry).
(*b*) sparaxis.
sparmannia.
spiræa japonica.
staphylea.
stock.
streptocarpus.
(*b*) tulip.
(*a*) zygopetalum.

The foregoing classification is not always rigidly adhered to by cultivators. Thus, zonal geraniums, tulips, and other plants, which are generally grown in the greenhouse, are often pushed on in a warmer house in order to get early bloom. Again, some plants that are frequently grown in an intermediate temperature for early bloom, notably roses, may be grown in a greenhouse, with no other disadvantage than somewhat later flowering.

It will be seen that a considerable number of beautiful and popular flowers can be grown in a structure, the winter temperature of which does not fall below 40°. The greenhouse is, indeed, the most generally useful of plant houses. Conservatories are often added to suburban houses by builders because they are supposed (for some inscrutable reason) to attract hirers. Does the suburbanist really run after a conservatory? If so,

THE BEAUTIFUL WHITE LILIUM SPECIOSUM KRÆETZERI.

it can only be because he does not know any better. Experience often teaches him a sharp lesson, because the builder's conservatory is generally badly built, and because the tenant tries to grow everything under the sun in it, in addition to turning it into a store for bicycles and cameras. Nine conservatories out of ten are drippy, draughty, and thoroughly bad for growing plants in, and are only suitable for displaying them for a short period.

When a flower lover has the choice of a plant house, and can only afford one, let him by all means have a greenhouse. Although it ought to be provided with a heating apparatus, he can grow a very nice lot of flowers in it without one. Here are a few plants that may be successfully grown and flowered in an unheated greenhouse:—

arum lilies.	freesias.	liliums.
azaleas.	geraniums (summer).	nerines.
balsams (in summer).	gladioli.	nicotianas.
camellias.	hellebores (Christmas rose).	ornithogalums.
cannas.	hyacinths.	petunias (summer).
clematises.	ixias.	schizanthus (summer).
daffodils.	lilacs.	spiræa japonica.
deutzias.		tulips.

Some of these might suffer a little in very hard winter weather if in growth, but a few sheets of newspaper spread over them afford a considerable amount of protection. Bulbs, and allied plants such as Christmas roses and arum lilies, will be the most suitable for winter and spring bloom. In summer the greenhouse practically becomes a hothouse, and tender plants can be grown in it.

In considering glass houses the flower lover must not overlook the connected items of heating apparatus, shad-

ing, flower-pots, special soils, flower stakes, and so forth. The most expensive of these is the first.

HEATING.—The medium may be coal (or coke), gas, or oil. In any case it should be associated with hot-water pipes, because a house cannot be heated satisfactorily by hot air radiated from a lamp or stove. For one small house an upright boiler of the "Loughborough" type will suffice. The following firms make such boilers, and might be approached for estimates :—

Messenger & Co., Loughborough, Leicestershire ;
Kinnell & Co., Southwark Street, London, S.E. ;
W. Cooper, Old Kent Road, London, S.E.;
Twelve-Hours' Stove Syndicate, 66 Victoria Street, London, S.W.;
Jones & Attwood, Stourbridge ;
Thames Bank Iron Co., Upper Ground Street, London, S.E.

The following firms would supply estimates for gas and oil heaters :—

Fenlon & Co., Tudor Street, London, E.C. ;
Darby Stove Works, Weston Street, London, W.C.

For ranges of larger houses a saddle, Trentham, Weeks' Tubular, Rochford, or other special boiler should be used. The following firms might be asked to supply estimates :—

Weeks & Co., Chelsea, London, S.W. ;
Richardson & Co., Darlington ;
T. Green & Sons, Southwark Street, London, W.C. ;
R. Halliday & Co., Middleton, Manchester ;

also any of the firms mentioned in connection with upright boilers.

With respect to the houses themselves, the following firms could be given the opportunity of tendering :—

Foster & Pearson, Beeston, Notts ;

Boulton & Paul, Norwich;
Richardson & Co., Darlington;
W. Duncan Tucker, Tottenham, London, N.;
Mackenzie & Moncur, Balcarres Street, Edinburgh.

The following firms make a speciality of small "tenants-right" houses:—

W. Cooper, Old Kent Road, London, S.E.;
G. Hayward, Brockley Road, London, S.E.

The writer does not care to recommend any one of the foregoing firms in preference to another.

As regards fuel, small coke is the best for upright boilers, and anthracite coal for large boilers. Oil stoves require care in trimming and cleansing, otherwise they are wasteful and smelly. A gas stove should never be put inside a house, as the fumes are highly injurious to plant life.

SHADING.—This may be provided in the form of blinds, or as a wash. The former method is the better, as the shade can be provided or withdrawn at will, by rolling the blinds down or up as the case may be. It is best to get them included in the estimate for the houses, and they should be made of tiffany, mounted on rollers. "Wash" shadings can be bought in powder form from seedsmen and sundriesmen, and applied, when prepared, with a brush.

SOILS.—The most useful materials for forming potting composts are loam (decayed turves), leaf-mould (decayed leaves), decayed manure, peat, and sand. These can be procured in most country districts. Or they can be bought from florists, and from dealers in horticultural sundries, such as the following firms:—

W. Cooper, Old Kent Road, London, S.E.;
G. H. Richards, 234 Borough High Street, London, S.E.;

C. E. West, Higham Hill, London, N.;

Osman & Co., 132 Commercial Street, London, E.C.

Any of the above firms that did not supply retail customers would give the address of its nearest agent.

A compost that will suit the great majority of pot plants is as follows:—

Three parts (by measure) of loam.		
One part	„	leaf-mould.
One „	„	decayed manure.
One-eighth	„	coarse sand.

WATERING.—The soil should be made firm in potting, then the wants of the plant as regards water can always be tested by rapping the pot with the knuckles. If a sharp, ringing sound follows, water is needed, but if a dull report is heard, water should be withheld. When plants are potted loosely, this simple test is not reliable; much turns, therefore, on firm potting. The correct watering for pot plants has more to do with success than any other item of cultivation. Too much water, and too little, are equally bad. It is not correct to water plants at regular intervals, summer and winter, in bright weather and in dull. They should be watered when the rapped pot rings, and at no other times, whether the intervals be long or short.

The pots ought to be "drained" before any soil is put in, and this is effected by placing a crock (broken portion of a flower-pot) hollow side down over the drainage hole, covering it with smaller pieces evenly overlapping, and putting on these a few flakes of clean moss. The hole permits superfluous moisture to escape, and the drainage prevents soil falling down and blocking the hole.

POTS.—The most useful sizes of pots are "sixties" (about three inches across the top, inside measure), "forty-eights" (four and a half to five inches), and "twenty-fours" (about eight inches wide). The pots take their distinctive names from the number in a "cast." A young plant may first go into a "sixty" from the seed-pan or cutting-box, then from that to a "forty-eight," and from a "forty-eight" to a "twenty-four" if a third move is necessary. Overpotting—that is, putting a plant in a larger pot than it needs—is objectionable in every way; it is bad for the plant, it uses up soil unnecessarily, it wastes pots, and it takes up valuable time. Many plants, notably hyacinths and geraniums, bloom best when rather "potbound," so long as they receive plenty of water. On the other hand, other plants, particularly chrysanthemums, ought to have the large pots.

The time for repotting plants is when the roots show at the drainage hole. The soil should be moist, but not so wet as to be messy, when repotting is done. It is generally advisable to keep the soil rather dry, and the plants shaded from strong sunshine, for a week after potting.

With good soil, careful watering, and proper potting, most plants will thrive, but there is one other important matter, and that is ventilation. When span-roofed glass structures are built it is wise to have ventilators provided in each side, so that the house can be ventilated from one side, even if a high wind is blowing from the other. Nearly all plants love fresh air, but not cold draughts. Amateurs are sometimes afraid to open the ventilators because of permitting warm air to escape, and thus cooling the house. Rather than go without ventilation a few more feet of hot-water piping should be provided. It

does not cost much. The following simple calculation will enable any one to find out what length of 4-inch piping to provide for each house :—

First multiply the length by the width, and the product by the height, in order to find the cubic capacity of the house. Example : a house 20 feet long, 12 feet wide, 4 feet high to the eaves and 8 feet high to the ridge (average height 6 feet), would have a cubic capacity of 1440 ($20 \times 12 \times 6 = 1440$).

To ascertain the length of pipe needed :

For a greenhouse divide the cubic capacity by 30.

For an intermediate house divide the cubic capacity by 25.

For a stove divide the cubic capacity by 20.

Thus, if our house of 1440 feet cubic capacity is to be conducted as a greenhouse, we shall have to put 48 feet of 4-inch hot-water piping in it; if as an intermediate house, 58 feet; if as a stove house, 72 feet. These quantities will allow the margin for ventilation which has been recommended.

The hot-water pipes should be arranged in two rows —a "flow" and a "return." The top pipe is the "flow," and it should rise from the boiler at the rate of about an inch to every 10 feet. The bottom pipe will be the "return."

Builders of glass houses should remember that plans have to be approved by the District Surveyor before the erection can be proceeded with—that is, in all districts where building bye-laws are in force. Particulars can be ascertained at the town hall of the nearest town, or at the offices of the Town Clerk.

They may be also advised to bear in mind that if a greenhouse is built on mortared bricks, and attached to a building by nails, it may not be removed without the

sanction of the owner of the house. If the owner of the greenhouse and the owner of the dwelling-house are the same person there is no trouble, but when they are different persons complications are possible. A greenhouse built on loose bricks, and attached to a dwelling by means of screws, is a "tenant's-right" fixture, and may be removed by its owner without hindrance from the owner of the house.

Pits and Frames

A pit may be defined, in horticultural parlance, as a small, partially sunk, glass house. If a house stands on the level, either detached or leaning against a wall, it cannot be described as a pit, even if it is quite small. If, on the other hand, the earth is excavated along the side of a range of glass houses, front and end walls are built up, and glass lights are put on, the structure thus made is a pit. Or if earth is removed even in the open, quite away from a larger supporting range, and a span-roof house built, it will still be a pit, provided a considerable portion of its area is below the level of the ground.

The advantage of a pit over an ordinary house is that it can be made much warmer with a given expenditure of fuel. It is therefore an economical structure for forcing. Cucumbers love the warm, moist air of pits. Rhubarb can be forced in them. Mushrooms can be grown in pits well. Large numbers of flowering plants can be successfully grown in them. On the other hand, we must recognise that they have certain disadvantages, and one is somewhat serious, especially in heavy soils—they are excessively damp in winter, and can only be kept dry when heated with hot-water pipes. Deep pits are

not much used for growing plants during winter when unheated. A house sunk 2 feet below the ground level, 9 feet wide, with a central path 3 feet wide, and a bed of the same width on each side of it, is a very good type of pit. It will do admirably for growing cucumbers and melons. It will suit tomatoes. And most flowering plants, including roses and carnations, will thrive in it.

Frames are merely glass tops, technically called "lights," laid on low bodies of brickwork or wood, generally the latter. They are cheap and extremely useful, whether heated or unheated. Even those flower gardeners who fight shy of glass houses in a general way may permit themselves a frame or two, especially if they wish to raise half-hardy plants from seed, such as stocks, asters, petunias, phloxes, and zinnias, and want to have winter violets. A frame is useful in all sorts of ways. To begin with, it may be united with a hotbed of manure in spring, and used for raising various flowering plants, also tomatoes, celery, and other kitchen-garden crops. In late spring, when the heat of the hotbed is spent, the frame will serve for hardening plants; and this process is important, for if young plants which had been raised in heat were put out of doors without an intermediate stage in a cool, glass-protected place they would suffer severely. In summer the frame may be used for cucumbers, or (if greenhouse plants are grown) for young primulas, cinerarias, bouvardias, calceolarias, and other things. In early autumn a mild hotbed of manure and leaves may be built up, a few inches of soil laid on it, and violets planted. Thus we see that a frame may be made useful all the year round.

We can buy either one- or two-light frames. A useful size for a single frame is 5 feet long, 4 feet wide, 18

inches high at the back, and 1 foot in front. This will cost about £2, 10s. If single frames are made very large the sashes are heavy to lift, and in preference to increasing the size of single frames it is better to have double ones.

CHAPTER II

FRUIT HOUSES

GRAPES, peaches, and nectarines, early strawberries, and figs, not to speak of early pears, apples, plums, and cherries, have an alluring sound.

We are all fruit-eaters nowadays. We no longer feel that we need four or five heavy meals a day. We realise that large quantities of solid food clog us—that they are wasteful in a double sense, first in that they entail more initial cost, and secondly in that they use up too much of our vital energy in the processes of digestion and assimilation. Brain workers in particular, and those who follow sedentary occupations, find the necessity for extreme care in avoiding overfeeding.

Fruit is a light and wholesome food, and we turn to it naturally when we once thoroughly learn the important lesson of restraint and good judgment. We like, too, to grow our own. But are we quite sure that we are in a position to force early supplies in glass houses? It is quite easily done, but we shall be wise to count the cost before we make a start. If we build houses for grapes, peaches, and strawberries, we shall have to heat them; and, if we are non-experts (and otherwise engaged to boot), we shall have to pay for skilled labour to manage them. Is it worth our while to do this? That is the question which has to be

settled, and each garden owner must decide it for himself, after carefully considering the matter in all its bearings.

We might give a little consideration to the houses and their cost.

A grape house, or vinery, may be either a span-roof or a lean-to. In large gardens it is customary to enclose the kitchen garden with a brick wall. This is often made extra high at the northern end, and a lean-to vinery built against the southern face of it, divided into three sections, respectively for early, medium, and late crops. The house may be of any desired length, but should not be less than twelve feet wide. The roof should have an angle of 45°. Taking into account the cost of the supporting wall, and the heating, such a range of vineries will entail an outlay of from £3 to £5 per foot run. The actual cost varies greatly—with the width, the height, the class of material employed, and whether only late crops are grown, or whether early supplies have to be produced. Firms of horticultural builders, such as those advertising in horticultural papers will give estimates if asked.

Grapes might be grown in houses that are not provided with a heating apparatus, but several of the choicest varieties, such as the muscat, would have to be omitted. In wet, cold seasons the results would be disappointing with nearly all varieties.

Early strawberries can be grown on shelves in vineries, and tea roses, and other plants, can be grown on the back walls, but a vinery cannot be looked upon as a general plant house.

Peaches and nectarines are grown in similar houses to grapes, and are trained on wires under the roof, and also on the back wall. As with grapes, the cost of culti-

vation will depend upon whether early as well as late crops are wanted.

Those persons who want a regular supply of home-grown fruit, and cannot go to the expense of vineries and peach houses, might consider an "orchard house." This is a light, well-ventilated structure, generally heated with a flow and return pipe all round. The fruit trees which it is to shelter may be grown in large pots, so that they can be shifted into the open air during part of the year. Many growers arrange matters so that the fruit trees may crop in late spring and summer, go out of doors as autumn approaches, and have the pots plunged in cinders, thus setting the house free for chrysanthemums. When the latter are over the fruit trees may come back again.

An orchard house is much more cheaply conducted than a forcing range of vineries and peach houses. Only enough heat is wanted to exclude frost in winter. Splendid apples, pears, plums, cherries, peaches, and nectarines can be grown in pots. There is, of course, an outlay for soil, which must be good; and pots, which must be large. But against this must be set the lower cost of building and heating apparatus. Fifteen feet should be the minimum width of an orchard house. The cost need not exceed £2 per foot run, and may be less.

Melons may be successfully grown in small pits such as those described in the preceding chapter, and the cost need not exceed £1 per foot run.

The question of labour now comes under consideration. Owners of small places, the garden work of which is done by one general hand (often only half trained), sometimes add glass houses without making extra provision for labour, either in respect to quantity or quality.

Thus we see a garden of two acres, in which fruit, vegetables, flowers, and lawns are included, as well as two or three glass houses, muddled by one overworked, and not really competent, man. The more people practise gardening themselves the more thoroughly they learn that it is full of apparently insignificant operations which take up considerable time. Merely pricking off a batch of seedlings may occupy a couple of hours, and leave very little to see.

If a vinery and a plant house, with accompanying satellites in the form of frames, are added to a garden, another "hand" should be engaged, or a labourer exchanged for a trained gardener and a strong lad. The change will mean the addition of several shillings a week to the labour bill, but it is necessary to successful and harmonious working. The best advice that can be given to a person who cannot afford to conduct a complete garden, with indoor and outdoor plants and fruit, satisfactorily, is to give up glass, save for a few frames, entirely. After all, one can buy both fruit and flowers cheaply, and although they may not seem to be so good as home-grown ones, it is better to resort to them than have constant friction, worry, and disappointment.

Having put the issue fairly, we may give a little consideration to the various fruits.

The most useful all-round black grape is certainly the Black Hamburgh, and the most useful white Foster's Seedling. They have not the special flavour of the muscat, but they are good. The minimum night temperature at starting may be 50°, and at finishing 65°. Assuming that a start is made at the end of March—which is a very good time—the necessary warmth can be secured without a great amount of piping, because

the warm weather of spring will be at hand. And inasmuch as the crop should be ready by the end of August there will be no difficulty whatever about getting sufficient heat, because Nature will provide it. It is the early forced grapes which cause trouble and expense in heating—the grapes which have to be ripe in spring. Another thing, grapes grown under practically natural conditions may have their roots in an outside border, whereas early grapes should have theirs in an inner one. The former will entail less labour in watering than the latter. A vine planted outside, and trained through an orifice in the brickwork, will be perfectly safe if its stem is wrapped round with a straw band. It may be planted in spring, and the upper buds all picked off down to one near the point where the glass and brickwork meet, which should be left to grow. When it is a foot long the whole of the stem above it may be cut away. All the buds on the part of the stem below the chosen one may also be rubbed out. This apparently barbarous proceeding generally leads to the formation of a splendid rod.

Vines entail a good deal of detailed work, as in addition to the necessary preliminaries of forming borders and planting, there is the management of the laterals, which have to be developed about nine inches apart along both sides of the rod, to bear the bunches of grapes; tying the young shoots to the wires in spring, an operation that requires care, as the shoots easily break off; fertilising the blossoms; and thinning the bunches—a slow, tedious operation. In addition, there are the routine operations of ventilating and syringing. Ventilation is a very important matter, as the leaves are liable to "scorch," and the berries to "scald," if the sun comes out on a closed house, especially after a series of

dull days. A cloudy spell sometimes lulls the grower into a false security. He rises late one morning, and finds that the sun has broken through, and is beating down with fierce heat on the vinery. The temperature has rushed up to an alarming figure, and although every ventilator is opened, it cannot be got down again. Moreover, the moisture which had condensed on the berries is suddenly dried up, and they are "scalded."

Although the routine of grape-growing is somewhat exacting it is pleasant and interesting, except for the operation of thinning, to which the former adjective hardly applies. Moreover, grapes are not only delicious but valuable fruits.

Peaches and nectarines are generally so costly in the shops that those who have had no experience of them might suppose them to be difficult to grow. On the contrary, nothing is more easy. The high prices arise, in the main, from the cost of early forcing, and prevail in the spring, when the supplies are short.

Peaches are remarkably free-growing trees; in fact, they often grow too strongly, especially in the hands of inexperienced people, who provide a heavily-manured soil, under the impression that manure is the principal want. The trees form long shoots like carriage whips in a few weeks, and wood so vigorous as this is not fruitful. Decayed turves, with wood ashes (refuse from garden fires), will provide a sufficiently fertile soil, as they will, also, for grapes. If the shoots extend more than three feet in the year, in spite of the absence of manure, the trees must be lifted and root pruned.

The trees are not altogether free from enemies, but they are easily kept healthy. Black fly will attack the tips of the shoots, but is subdued by promptly dipping the affected parts in the soft soap and paraffin oil wash

(see Index for page reference). There is a deadly fungoi disease which gardeners call "blister," owing to the fact that it causes swollen patches on the leaves. It will kill off a young tree quickly if it once gets a firm hold, but that rarely happens except when the trees are subjected to cold draughts in winter and spring. Careless ventilation often means the death of a peach tree. Mildew and red spider sometimes attack peaches, but they are only troublesome when the soil and air are very dry; and they are easily kept away.

Success with peaches and nectarines turns, in some measure, on a wise choice of sorts. The grower who plants several should not buy all of the same fruiting season, but should select varieties that form a natural succession to each other. Thus, making his earliest variety a nectarine, he might buy the splendid sort called Lord Napier. Taking peaches for his second and third crops, he might have Grosse Mignonne and Sea Eagle. These are all healthy growers, free bearers, and of delicious flavour.

One can buy peach and nectarine trees all ready for bearing, but it is not everybody who can afford them, as they are rather dear. Young, untrained trees are cheap enough, but they must be handled in a particular way if they are to give the best results. One often sees trees with the lower part consisting of nothing but bare, brown stems; there may be a length of three or four feet without anything whatever on it. This is due to neglect in pruning. The trees ought to be cut back hard when young, in order to get the lower part of the wall or trellis furnished with fruiting wood. The resulting branches can be trained a few inches apart on the wires, and side shoots allowed to grow from them for bearing the fruit. When the fruit has been gathered

these shoots can be cut out, and a young one which has grown up from the base of each tied in its place for fruiting the following season. With a little experience the grower learns to arrange for a constant succession of young shoots. He learns, too, how to disbud—that is, to pick off from the bearing shoots in spring all the leaf-buds except two, one at the base, which is to form the fruiting shoot of the following year, and one at the tip, which is to draw up the sap. He finds also that it is prudent to thin the fruit when a great deal forms, limiting each shoot to two.

Altogether he will find the peach a very interesting fruit to grow, as well as a very delicious one to eat.

We have seen that we can grow some pots of strawberries on a shelf in a vinery, and with a little care we can have a nice supply of fruit a considerable time before any is ready out of doors. Any trade fruit-grower will supply us with plants, or we can raise them ourselves by filling some three-inch pots with soil in July, sinking them to the brims in the soil round the plants in an outdoor strawberry bed, and placing on each one of the young plants which will be seen to have formed on a long "runner." When they have rooted, cut the runner through. Keep the young plants in the three-inch pots until they begin to root through the drainage hole, and then transfer them to six-inch pots, using decayed turves, leaf-mould, and coarse sand in the proportions of three parts, one part, and one-tenth part. By mid-autumn we shall have strong plants with fruiting crowns, and all we have to do is to stack the pots in a heap on their sides, cover them with litter or bracken, and leave them until we start our vinery or other house, be it January, February, or March. It is not wise to force hard and early, or to aim at very heavy

crops. If we start our plants in February in a temperature of about 50°, and restrict each to six fruits, we shall probably succeed much better than if we begin in December, use a great deal of heat, and let the plants bear as many fruits as they like.

All varieties of strawberries are not equally good for forcing in pots. Two of the best are Royal Sovereign and Sir Joseph Paxton. The first may have the preference; it is a splendid variety—a healthy grower, a free bearer, and has large fruit of good flavour.

We can grow melons either in a house or pit. They want a wire trellis, fixed a few inches from the roof, to ramble on, a compost such as will suit peaches or strawberries, and they are happy. We can raise plants from seed in spring if we have a hotbed, and we can plant them out in our pit, each on a separate mound of soil about a yard from its neighbours. The plants will grow rapidly if we keep the soil moist, and provide a temperature (minimum) of about 65°. We must not let the shoots get thick and tangled, but keep them just clear of each other. Two kinds of flower will show—one with a swelling (the incipient fruit) at the base, the other without. If we keep the soil nearly dry for a few days (but not so much so as to cause the plants to flag), when the plants are in bloom pollen dust will form and become loose on the non-fruit flower. We now remove the petals and press the flower into the centre of the fruiter, thus effecting fertilisation.

Six fruits are the most that each of our melon plants should bear, and when the melons begin to swell we must take hold of the end of each bearing-shoot between finger and thumb at the second leaf beyond the fruit and nip it off. Thus each plant will be kept within bounds. It is given its work to do, and has to do it

without interfering with its neighbours. When the fruits are swelling up we can give a top-dressing of fresh soil with advantage. It may be of the same nature as that which we planted in, and may be put on two inches or so thick. It ought not to be brought from a cold outdoor heap and used immediately, but kept in the house until it has got warmed, and then be put on.

Of the many varieties of melons offered in seed catalogues, Hero of Lockinge and Syon House are two of the best.

PART IV

THE FRUIT GARDEN

CHAPTER I

WHY WE SHOULD GROW FRUIT

THE Perfect Garden must contain fruit for three main reasons—(1) the trees are beautiful when in bloom; (2) the fruit is pleasant and beneficial; (3) the cultivation of fruit trees is healthful and interesting.

There is nothing more charming than a break of fruit blossom in spring. First come the stone fruits—apricots, peaches, cherries, and plums; then follow the pip fruits—apples and pears. A complete collection of the different kinds will give us a natural succession of bloom. The display will be further prolonged by the variation of the different sorts. Thus, all varieties of apples do not flower together; some are early, and others late.

The Kentish cherry orchards form a glorious picture in the spring. Cherries luxuriate on the rich, loamy soils between Newington, Sittingbourne, and Faversham, and some of the trees are giants, approaching the size of park trees. Small or large, they are as beautiful as the finest of ornamental trees when clothed in their snowy mantle of spring bloom.

It is good to wander amongst the trees in a large orchard on a golden April day. The trees are laden with blossom, which falls in a constant, steady shower, that gradually whitens the grass as with a fall of snow. It is the time of young lambs, whose fleeces vie with the

petals of the cherries for whiteness. Sunlight quivers through the foliage, and falls in bars, and zigzags, and elusive, quavering lines on the turf. There is an ever-varying play of light and shade.

We cannot match the finest of the Kent trees in all districts, because the soil is not so favourable, but we can achieve good results in most places. At the least we can have a spread of Morello blossom on a wall, and a naturally grown plant of the brandy-cherry—that is, one which has been allowed to form, and retain, a mass of side shoots—is a lovely object. Every bit of spray is densely wreathed with white flowers. Consider that all this beauty is not the end, but only the beginning—that after it comes the refreshing, agreeable, wholesome fruit—and we begin to understand how valuable fruit trees are.

Perhaps the apples give us the most beautiful blossom effects, as they do the most valuable fruit. Most of the bloom comes in May, although one or two varieties, such as Northern Greening and Court-pendû-plat, may not be out until June in a late season. Some varieties have much finer flowers than others. Bramley's Seedling, Lane's Prince Albert, Blenheim Orange, Wellington, and other varieties which, as we shall see presently, are good cookers, have large, handsome flowers, and are in the best sense of the word ornamental plants.

Old trees in orchards, with their gnarled trunks, and crooked, moss-covered branches, are very picturesque in spring, but as fruit-bearers they are often defective; and, what is more, they are a source of danger to neighbouring plantations, through the pests they harbour. A paternal state will not permit a child to infect a whole school with scarlet fever, and it is beginning to object to a neglected orchard forming a home for caterpillars

and fungi, whence they spread to other, and possibly well-managed, gardens. Young trees may not be so picturesque as these twisted veterans of the orchards, but their flowers are finer, and they are very beautiful when full of bloom. In our flower-garden section we saw how old fruit trees might be utilised, their tops being reduced, and their main stems being used for supporting roses and clematises.

The wise fruit-grower will either keep bees, or view with favour the visits of his neighbours' bees to the trees. Bees are undoubtedly friends to the fruit cultivator, through their action in conveying pollen from flower to flower, and thus insuring cross-fertilisation, with all its invigorating influences.

We would grow fruit trees, then, for their beauty alone; how much more ready are we to cultivate them for the sake of their fruit! If we had only a supply of apples we should consider ourselves fortunate. Provided that we arranged for planting both dessert and culinary varieties, we should have apples to eat raw and apples baked, stewed, or rolled into toothsome dumplings. Among the dessert varieties we should hope to include the juicy Worcester Pearmain, the rich Ribston Pippin, the full-flavoured Cox's Orange Pippin, and the aromatic Rosemary Russet. We should have some sorts for summer eating, others for autumn use, a supply for Christmas and the cosy dinner-tables of winter, and yet more to last us into spring. Then of the cookers we should take care, while growing early sorts like Lord Suffield, Keswick Codlin, Lord Grosvenor, and New Hawthornden, to have a goodly selection of long-keepers, such as Lane's Prince Albert, Bramley's Seedling, and Newton Wonder, so that we might draw from our stores until late spring. Particularly we should take care to include

one or two varieties with real, distinctive flavour, like Wellington, Bramley's, and dear old Blenheim Orange —apples that taste of something, and can be eaten with enjoyment without being smothered with sugar and cream.

We should have as long a succession as possible of melting and delicious pears, for autumn, winter, and spring desserts. For this fruit, and also for the apple, we should probably resort to the cordon system, in order to get a large number of varieties into a small area of ground. We do not want large bulks at one particular season; we want smaller quantities over a long period. Early pears only whet our appetite for later ones. The foreign exporter sends us excellent pears in August and September, but after that we find it difficult to buy them. If we could only grow our own, and store them in a suitable place, we could not only have fruit in the months named, but for several months afterwards, for let it be known that some of our best pears are good keepers. We should take care, while we are about it, to grow varieties that we could really enjoy, such as Jargonelle, Beurré Hardy, Williams's Bon Chrêtien, Emile d'Heyst, Marie Louise, Thompson's, Maréchal de Cour, Doyenné du Comice, Josephine de Malines, and Glou Morçeau. Most certainly pears would not be left out of our fruit calculations. We would have them, and have them good.

In view of their value for preserving, as well as for dessert and cooking, plums are only second to apples; indeed, it wants the best of apples to exceed the good old Victoria plum in general value. Do people realise what delicious jam this and other varieties make when gathered green? In years of plum plenty (like 1907, when trees all over the country were breaking down

with their burden of fruit, which, ripe, was of little value, owing to the glut), it is true kindness to relieve the trees of a part of their crop while it is still green, and preserve it. The fruit left has a better chance; there is less risk of broken branches, and the jam is of the finest possible flavour if equal quantities of fruit and sugar are used.

Such plums as Victoria, Pond's Seedling, Monarch, and Cox's Emperor are splendid when cooked, and we have no more delicious dessert fruits than such choice plums as the early and late Transparent Gages and Coe's Golden Drop. Plums are not quite so suitable for cordons as apples or pears, but they are easily grown as standards, half-standards, bushes, and wall trees.

Mention of walls gives a reminder of how much valuable space is often wasted that might be occupied by fruit trees. Even fences may be utilised. No aspect is absolutely impossible. It is true that the majority of fruits will not thrive on east and north aspects, but a few will. The Morello cherry and Coe's Golden Drop plum will succeed, and at the worst we can grow currants and gooseberries, which give splendid fruit when grown as cordons on walls and fences. If the support is a low one the trees may be trained diagonally, which gives them a longer run; and, if necessity should arise, it may be practicable to strain one or two lengths of wire above the wall.

Our selections of cherries will not be confined to the Morello. We shall certainly endeavour to find room for one or two good varieties of the spur-bearing class, such as May Duke, Governor Wood, Bigarreau, Black Heart, and Rivers's Early Prolific. These will be very welcome for dessert.

We may, perhaps, include a quince, for the sake of the excellent jelly which its highly perfumed fruit makes.

Turning to the small or soft fruits we first consider the ever-valued strawberry, with its three main recommendations—early bearing, delicious, refreshing flavour as dessert, and value for jam. We cannot propagate apples and pears, and grow them to a fruiting stage, within a year; strawberries we can. One of the first fruits of the year, the strawberry is also one of the most valuable. It takes up so little room that a few rows can be grown in every small garden. It is accommodating as to soil, thriving, with proper management and a wise choice of varieties, in light as well as in heavy land. It is scarcely necessary to point out that strawberries make one of the most delicious of preserves, for which purpose the smaller successional fruits may be used after the first yield has been used for dessert. We shall not overlook the "perpetual" strawberries.

Gooseberries have three main uses—they are excellent for tarts, selected varieties are delightful for dessert, and they make splendid jam. But a great trade in bottled gooseberries is now growing up, as, indeed, it is in plums, pears, and cherries also. Preserving without sugar is apparently to be the method of the future. Special air-tight bottles with screw tops are now made by several firms. These are filled with sound, carefully picked fruit, which is covered with a little syrup, and then sealed up. The fruit keeps splendidly, and may be used months afterwards for tarts and stewing. The green gooseberry is the earliest outdoor fruit of the year, and as such is always welcome. By choosing our sorts we can have a constant supply for many weeks.

Currants are nearly as valuable as gooseberries for cooking and preserving, if less so for dessert. They make delicious jams and jellies. Easily raised, coming into bearing quickly, and being in season for a long

period with a wise choice of varieties and aspects, they serve a valuable purpose.

The raspberry will not be overlooked, if only because of its value for mixing with currants in dishes of stewed fruit. It admirably softens the sharpness of the currants, and makes a pleasant blend. Like currants, it makes excellent jam and jelly.

Of the hybrid fruits the loganberry will perhaps be esteemed the most highly. It is every bit as good as the raspberry for preserving, although hardly as good for stewing, on account of a slight inferiority of flavour. Fruit fertilisers are endeavouring to improve the flavour of the loganberry, and if they succeed it will be one of the most valuable of all the soft fruits, owing to its vigorous growth and great productiveness.

We shall perhaps have an apricot or two on a wall—even peaches and nectarines if the position is sheltered and the aspect favourable, but it is useless trying them in places exposed to cold winds, unless they can be protected, because they will be destroyed by "blister." The apricots may need shelter also, because they bloom so early that the flowers are often killed by frost, and the crop destroyed.

Blackberries may be thought worthy of a place, or they may not. Let it be remembered, however, that the best garden forms bear large, juicy fruit, which makes splendid jelly.

Nuts are not included in the usual list of garden fruits, but they are easy to grow, and may have a place if desired.

We may, then, by selecting good varieties of suitable kinds, have a long supply of fruit. It should be on our tables every day, in some form or other, as an agreeable and beneficial, if not highly nourishing, food. The acid

juices of fresh fruit are valuable for the human system, and the mistake of keeping it for the last stage of a heavy evening meal ought to be avoided. The time to eat fruit with the greatest benefit is in the morning, before the first meal is partaken of. But if raw fruit stands first, cooked fruit has its value. A baked apple is pleasant to the palate, and thoroughly wholesome, while stewed pears, plums, cherries, and small fruits are also excellent. Jam presents its strongest appeal to the juveniles, and is an admirable food for them.

Our third reason for growing fruit is that it forms an interesting and healthy exercise or occupation. The pruning, training, and general management of fruit trees are tasks full of interest. There is nothing arduous in connection with it, when once the labour of preparing the ground is over, and if the necessity for root-pruning trees when they have grown to a considerable size is avoided, as it can and ought to be. The various operations are light and agreeable. The work is done out of doors, in fresh air. In moving about among fruit trees, pruning them, spraying them, and ministering to their requirements in various ways, one gets gentle, healthful exercise, combined with a pleasant, unexciting mental stimulus.

It may be well to utter one word of warning. A great deal is said in the press on the subject of the high profits which attend fruit-growing, and irresponsible writers point to it as a ready means of adding to a small income. It is rarely that a collection of fruit trees in a private garden yields much money, because there is not sufficient of the various sorts to establish a regular trade. The fact that a few particularly fine fruits of a special variety may sell for a good price must not be taken as proof positive that the

whole of the surplus fruit can be disposed of on corresponding terms.

Speaking broadly, the culture of fruit for market and for meeting the wants of a family are so entirely dissimilar that they must proceed on widely different lines. The market grower not only wants good fruit, but a considerable quantity of it, so that he may be in a position to establish a connection with his agent, and maintain a supply of the varieties which the latter reports to be in demand. In the main, he must aim at getting large quantities of a few varieties, carefully chosen to suit the soil and situation. The private grower's requirements are different. He wants small quantities of a large number of varieties, in order that he may have a supply daily over the longest possible period. There is, therefore, a fundamental difference between the two classes of growers. It is impossible to plant fruit to meet the requirements of both fully, and it may be suggested that those who plant for private use would be wise to abandon all ulterior idea of profit. Should a monetary return come subsequently, in special circumstances, well and good. As a rule, it is only an apple surplus that has to be sold, because other fruits can be preserved. Non-keeping apples are sometimes too abundant for immediate use, and as they are not valuable for jam, there is a natural and laudable desire to sell them.

With several good reasons for growing fruit firmly established, we may now proceed to consider such practical matters as choice of site for the fruit garden, preparation of the land, selection of varieties, planting, and pruning.

CHAPTER II

A COMPLETE FRUIT GARDEN

It is not every garden lover who can afford the luxury of a complete fruit garden, with wall trees, arches, standards, pyramids, and bushes. Even in large establishments where a great deal of fruit is grown, the fruit shares the kitchen garden with vegetables. Fruit is grown on the walls, and vegetables on the borders under the latter. Along the paths there may be borders of vegetables, with lines of cordon and espalier fruit trees behind. In the open quarters there will be sections of vegetables separated by lines of fruit bushes.

The fact that fruit is not generally grown in a garden to itself need not deter any one who wants to have a complete collection of fruit from arranging for it. A separate fruit garden is quite feasible, and is highly interesting. If it is enclosed by walls, well and good; if not, we can make boundaries of wire or wooden fencing or trellis-work, and plant fruit trees on them.

Let us consider how we might carry into effect this idea of a complete fruit garden. We will assume that we must forego walls. We fully recognise their value, but the cost is too great for us. In place of walls we form our boundaries by driving in strong posts, and straining lengths of wire to them. Our posts should stand six feet above the ground, and five lengths of wire will suffice. These wire boundaries will make admirable

supports for cordon and espalier trees, which, together with other forms, we will consider presently.

We shall, of course, arrange for entrances to our enclosure—say four, one at each corner. These may be arched, for the sake of informality, and the arches planted with loganberries, blackberries, or ornamental crabs.

We will form a path all round, but, instead of making it close to the boundary, we will form it a few feet within, so as to leave a border. This can be planted with strawberries and small bush fruits, such as gooseberries and currants. Along the path we can strain a wire about two feet above the ground and train horizontal cordons along it.

We may now turn our attention to the main body of the garden. This could, of course, be in one piece, but it will be more interesting and attractive to divide it into two sections, separated by a cross path. Quite in the middle of the garden this path might be turned round a central object, such as a standard mulberry tree with a seat at its foot, or a circular framework of poles planted with loganberries, surrounded by a border of stocks or other fragrant flowers. At each point where the cross path leaves the main path we can provide an arch. The two main sections can then be filled with standards, bushes, and pyramids, and the garden is complete.

The management of a fruit garden such as this would be a delightful pastime. It would prove almost as interesting as the management of a flower garden. In a sense it would be a flower garden, because the spring blossom of the trees would be a real asset; and it would be quite permissible to introduce a few flowers beside the paths. Of course the fruit garden need not be very

large. It would be a garden within a garden—a section apart from the garden proper.

We shall have no difficulty in finding types of tree to suit our various purposes. Let us commence with the entrance arches. It was suggested that these might be planted with loganberries, black currants, or ornamental crabs. The loganberry is well suited for cultivation on arches, on account of its remarkably vigorous growth, and its large, thick leaves. When well established it throws up canes several feet long in a few weeks, so that it clothes a support very quickly. The flowers are not particularly beautiful, but they are produced abundantly. The fruit is like a huge raspberry, and is juicy and refreshing, but there is no very marked flavour. The loganberry may be planted in autumn or spring. It likes a deep, rich, cool soil, and is at its best on heavy loams or well-worked clays. It is not well suited by thin, dry, sandy, impoverished soil. Ground of the latter character may be improved by adding manure and burnt clay. Pruning may consist in cutting out the older canes quite from the base. The new canes, which are to give fruit the following season, ripen best if they are tied out clear of the fruiters, because, when so treated, they are well exposed to sun and air.

Everybody knows the blackberry of the hedgerows, and appreciates it for stewing in the autumn, in spite of its slight grittiness. Everybody does not know, however, that there are garden forms vastly superior to the native. Several of them originated, like the loganberry, in America. They bear more abundantly than the wilding, and the berries are a great deal larger, as well as more juicy, and richer in flavour. Two excellent varieties of garden blackberry are the parsley-leaved and the Wilson Junior. Most fruit nurserymen offer

these two sorts, and they are quite cheap. Perhaps the parsley-leaved is the more reliable. The Wilson Junior bears splendid crops of large, juicy fruit, but it does not grow vigorously in cold places, especially if the soil is dry and shallow. It wants shelter and rich land. The fruit called the Japanese wineberry may be grown with the blackberries if desired. It grows strongly, and the fruit is large and juicy.

The one real difficulty with blackberries is to establish them. They often grow very feebly when they are first put in. The soil should be dug very deeply, and well enriched with decayed manure. The canes, when planted in autumn, should be pruned back close to the ground, however strong and well rooted they may be. It seems an unfortunate thing to have to do, bearing in mind that it means sacrificing a crop of fruit the first year, but it is certainly prudent. Whatever reluctance is felt at foregoing an immediate crop should be overcome, in the interests of future success. With rich soil and early pruning to help them, the plants generally make good growth the first year, and fruit well the second. If they do not grow well, but form weak, spindly canes, there is nothing for it but to cut them down again.

When blackberries are fairly established they throw up plenty of new canes every year, and these bear the following season. The firmer and riper that the canes of one year become, the better the crops of fruit in the following season. They should not be allowed, therefore, to grow very thickly, but should be restricted in number, and the old canes should be cut out directly the fruit has been gathered.

Ornamental crabs are beautiful trees, and the fruit is of value for preserving and for making jelly. The flowers of several are large and brilliant, and the succeeding fruits

are highly coloured, so that the trees are ornamental both in spring and late summer. A variety of the Siberian, called Cheal's Crimson, the Dartmouth, John Downie, and the Transcendent, are four of the best. Both Cheal's and the Dartmouth have highly-coloured fruits. John Downie bears clusters of brilliant oval fruits, and may be chosen if only one variety is wanted. Transcendent also has oval fruits, red and yellow in colour.

The crabs like a substantial soil, and will thrive on clay if it is well worked. They make excellent cordons, and it is in this form that we should use them for our arches, if we decided to use them at all. As cordons they will be restricted to one stem, the side shoots being pruned close in, so that the flowers and fruit are borne in a rope. The main stem will be allowed to extend freely, of course, the object being to get it to the top of the arch. With a strong tree planted at each side the arch will soon be covered.

Having disposed of the entrance arches, the next consideration may be the trees for the wire-boundary framework. Here we can utilise any of the different types of trees that are trained flat, such as cordons, fans, and espaliers.

Cordon, or single stem, trees have increased rapidly in popularity during recent years, and are now planted in almost all gardens where fruit trees are grown. The point made in the previous chapter—that by adopting the cordon system a large number of varieties can be grown in a very small space—is highly important to amateurs who do not possess large gardens. One may grow twenty different apples or pears on fourteen yards run of support, as the trees do perfectly well only two feet apart. We may not get more than an average of ten fruits a year to each tree, but what of that? We

are not like the market grower ; we do not want a large bulk of any one variety at any given time ; we want enough to keep the household going for a long period. Ten fruits a day for ten weeks are more useful to us than one hundred fruits a day for one week.

As they grow in a small compass, a row of cordon trees can be much more easily protected from birds than a similar number of bushes or standards, for tanned fish-netting can be brought into play. And birds can be very troublesome to fruit growers. They have a most exasperating way of picking off the fruit buds when the latter are beginning to burst. One or two bullfinches will pull off hundreds in a few hours and throw them down, causing irreparable mischief. And the birds will renew their attack when the fruit has developed, often before it is ripe. It is a case of either protecting the trees or killing the birds, and a great many growers, particularly owners of large trees, which are difficult to net, choose the latter alternative, thereby bringing down on themselves the anger of bird lovers. It is easy to "hold the fort" for birds generally, they certainly must not be killed indiscriminately. But it is hard to defend the bullfinch. On the whole, it seems to be a legitimate case for killing first and arguing afterwards. At all events the buds are then on the trees.

Most of the best varieties of apples do well as cordons. All pears succeed. Plums and cherries are not so good. The amateur will be wise to plant what apples and pears he wants first, and then see what space is left for plums and cherries. The trees will cost from a shilling to half-a-crown each, according to age and variety. They should be purchased in autumn, when the buyer is sure of getting the particular varieties which he wants, and runs no risk of substitutes. It is

possible to get very nice trees, with fruit buds, of a great many good varieties for one and sixpence each. They will range from five to six feet high, and will have no side shoots, or if any, only one or two very short ones. The trees may be planted diagonally instead of upright, say at an angle of forty-five degrees, because this gives the leaders a longer run before they get to the top of the support, and the longer the run which severely restricted trees have, the better it is for them. They should be tied to the wires at once, then there will be no fear of chafing and injury through wind-swaying.

The fan shape is generally used for peaches, nectarines, and apricots. None of these kinds is reliable on a wire support unless there is shelter of a substantial kind behind them. If cold spring winds are kept away by a belt of trees and shrubs they may thrive. The trees are dearer than cordons, but they cover more space. A fan tree in its first year may cost half-a-crown, a tree in an advanced stage of pruning, and furnished with fruit buds, five shillings. It is wise to pay the extra price for the older tree if no knowledge of training is possessed, as young fan trees are very easily spoiled. They need hard pruning back in two consecutive years, and partial shortening the third, in order to get the lower part of the support well furnished with wood. If the shortening is not done, only the upper part of the trellis is occupied by fruiting shoots. Amateurs are unable to appreciate this point; indeed, it is not put to them as a rule. In any case they shrink from hard pruning. The nurseryman does not. It is a part of his regular routine, and sentimental considerations never occur to him.

When a fan tree has been well furnished with main branches or ribs, as a result of early pruning, it is not

difficult to manage. As we saw in our chapter on fruit under glass, the routine consists in cutting out old wood which has borne fruit, and tying in young shoots to take their place and bear the following year.

The espalier fruit tree is an interesting and good form, but it is not quite so easily managed as the cordon. Partly on that account, and partly because, by taking up more room, it precludes the possibility of growing so many varieties, it has declined in favour. There was a time when nearly every large kitchen garden had its walks bordered by espaliers, but it has passed. However, many trees of this mode still exist, and it is quite worth a little consideration.

An espalier is a tree of right angles. It consists of a series of horizontal branches breaking from a vertical stem. The leader goes up as far as the height of the support will admit. The horizontal tiers are trained at intervals of a foot on both sides of it, and extend to the full width of their support. When a young fruit tree is trained so that every branch except the central one is diagonal it becomes a fan; when, however, the outer branches are all horizontal it becomes an espalier.

As with the fan, so with the espalier, it is prudent to leave the early stages of training to the nurseryman, unless the purchaser has time and knowledge. Any young apple tree raised by budding or grafting on to a "stock" can be turned into an espalier, given two things—a sufficiently early start, and some experience in the work. When the nurseryman contemplates forming an espalier he begins with a tree eighteen months from the bud. It is generally a tree with only one growth—an upright stem four to six feet long. Some time in the autumn or winter—certainly before it starts growing in the spring—he cuts it back very hard.

If possible he cuts it to a point about a foot from the ground where three buds are situated. One of them will form the vertical shoot, another the first left-hand horizontal, and the third the first right-hand horizontal. Of course, the young shoots do not grow in the desired positions of their own volition. One does not grow straight up, and the other two at right angles with it. All three follow very much the same line. The trainer ties each to a stake, the central one vertical, the two outer ones at an angle of about forty-five degrees. If one of the latter grows stronger than its fellow, he depresses it more, in order to check it. The fact that lowering a shoot in the direction of a horizontal line checks its growth, explains why the grower is in no hurry to tie it down, except under the compulsion of irregular growth. Branches tied diagonally will come down to the horizontal eventually without breaking off, if it is done before they get hard.

When the central shoot has made a little more than a foot of growth, the tip is pinched out to start three more buds, one of which goes up as a continuation of the leader, the other two form the second tier of horizontals, and so the work goes on, until the desired height is reached.

An espalier tree purchased from a nursery after two years training should have at least three tiers of branches, and may cost four or five shillings. It may be trained to stakes, but is best trained to wires. A wire framework erected for cordons will support espaliers equally well. The central and horizontal branches of the espalier all bear fruit, but they must not be allowed to form a number of strong side shoots, because these could not be tied in systematically, and would form an untidy, crowded tree. The best way of dealing with

them is to pinch them back to within about half-a-dozen leaves of the base at the middle of August, and cut them close in during winter. This effectually prevents any overcrowding, and at the same time encourages the development of plenty of fruit buds.

The cordon, fan, and espalier trees are all suitable for training against a flat surface, such as a wall, fence, or trellis, and they will furnish the arches and boundaries of our fruit garden. We may now turn to the trees needed to fill up the open ground, and of which there are many forms.

There is a very popular type of tree called the standard, the fruiting part of which is mounted on a tall leg or stem. It is the kind of tree planters use who want to establish orchards. Having its head well up in the air, it can be allowed to spread freely without preventing the soil below from being used. Some people suffer from making an injudicious use of this potential advantage. Perhaps they lay their ground down to pasture, and take the turf quite up to the boles of the trees. The natural soil has to be very good to carry healthy, productive trees when this is done. It might seem that grasses extract very little nourishment from the soil, being low-growing, small-leaved plants; but as a matter of fact they cause the loss of a good deal of moisture, and the roots of the trees are thus induced to go down into poor subsoil, or into strata which are quite devoid of fertility. Or perhaps growers crop the ground close up to the trees with small fruits and vegetables, the roots of which make heavy drains on the food stores in the soil. When these mistakes are avoided the trees thrive, if the varieties are suited to the district and the soil.

We may certainly introduce a few standard trees into our fruit garden, provided that we do not plant them

nearer than thirty feet to each other, and do not crop, at any stage, within a radius defined by a vertical line drawn from a circle made round the extreme tips of the branches. The latter condition means that the ground crops must recede farther from the bole as the tree grows and spreads.

Standard apples should be bought on the English crab stock, standard pears on the pear stock, standard plums on the mussel, Brompton, or Brussels stock, and standard cherries on the gean stock. All fruit nurserymen use the stocks, and supply them when asked. The trees may be slower in coming into bearing than trees on dwarfing stocks (which we shall discuss soon), but they will get a strong hold of the soil, and become large, healthy trees. When they do get into a fruitful state they will bear heavy crops.

Standard trees are a little more expensive than dwarfs, and they entail an added cost in staking, which is necessary to prevent their being uprooted by the first heavy gale. They had better be left out of very small gardens.

Bush and pyramid trees do not differ in respect to stocks, but only in the method of pruning. Both types should be on dwarfing stocks. In the case of apples, the stock asked for when ordering the trees should be the broad-leaved English paradise; of pears, the quince; of plums, the mussel or Brompton; of cherries, the mahaleb.

The word "stock" has a mysterious sound to beginners in fruit-growing, and they may wonder what it means. Whenever they buy a fruit tree, they buy a union of two plants. Let us say that they purchase a dwarf Cox's Orange Pippin apple. The fruiting branches are apple, and the upper part of the main stem

is apple, but the lower few inches of the stem and all the roots are a different plant—the stock. The apple is established on the stock either by budding in the summer, or by grafting in the spring. It is quite possible to have apples on their own roots by striking cuttings, which make healthy trees, but they do not fruit so freely as trees on stocks. Own-root apple trees have a coarser root system than stock trees. The roots go down deeper, and do not benefit so much by surface feeding. A few faddists advocate them, as they would advocate anything that differed from general practice; but they are without influence, and may be left to learn wisdom by experience.

The union of apples and paradise stocks is not, in a general way, private garden practice; partly because it presupposes the possession of both apples and stocks, and partly because it requires a considerable amount of practice to do well. It is nurserymen's work. The private grower should only make himself so far acquainted with stocks as to know which of them to ask for. He can leave the rest to the nurseryman with advantage. It is quite likely that if bush apples and pears were ordered, without any mention of stock, trees on the broad-leaved English paradise and quince would be sent. The nurseryman certainly uses more of these stocks than of any others. But he does not mind the stocks being specified; he is used to it; and he will always supply them on demand.

Paradise stock apples make splendid little bushes, and are the very thing wanted for small gardens. They root near the surface, in the best soil, so that they are always well nourished—unless, indeed, the grower is so foolish as to plant them in poor land, and to put other crops close to them. They come into bearing quickly.

They are easily managed. With care in pruning they can be kept within small compass, and yet be well furnished with fruitful wood. Three yards apart is a sufficient distance at which to plant them.

Dwarf apples, plums, and cherries are not often trained as pyramids, but pears are. The trees may cost a little more than bushes, because they have involved more time in training, but it will not be a great deal. The average price for three-year-old bushes and pyramids will be half-a-crown or three shillings. Both types require about the same amount of room. One can hardly say of any fruit tree which is regularly pruned that it is natural, but the bush is less formal than the pyramid. In both cases it is best to buy trees about three years old, which have been partially trained by the nurseryman. Indeed, this applies to standards and practically all types of fruit tree.

We come now to our soft fruits—currants, gooseberries, raspberries, and strawberries. The two first named are generally grown as bushes, but, as previously mentioned, they may be used as cordons for training on walls or fences. They are in the main own-root, not stock, plants. Practically all bush currants and gooseberries are struck from cuttings. They are naturally dwarf-growing, fibrous-rooted, and surface-rooting plants, so that they do not need any dwarfing, shallow-rooted stocks. Cordon gooseberries are often, but not always, own-rooters. Nurserymen make use of a stock called *ribes aureum* for working standard gooseberries on. Red and white currants will do six feet apart, but black currants and gooseberries, which grow stronger, should have a foot or two more.

Raspberries, blackberries, and loganberries are grown on their own roots, so that no question of stocks comes

in. The first two are propagated by sucker growths, which spring up from the root stock. The loganberry is propagated by striking the tips of the canes, which are bent over and pegged down to the soil.

We have seen that the loganberry can be grown on an arch, but it can also be trained to a wire framework if desired. Raspberries must be trained on wire or supported by stakes, but they do not need such a tall erection as loganberries and blackberries. Five feet is high enough. The canes may be put in a foot apart, and every other one cut hard back. Those left will bear fruit the first year, the others the second year.

Our last fruit, the strawberry, will be planted in a bed, and may have a distance of thirty inches between the rows, and eighteen inches from plant to plant in each row.

CHAPTER III

WHEN AND HOW TO MAKE THE FRUIT GARDEN

ALTHOUGH there are certain places in which it is difficult to grow fruit successfully, there are few in which it is impossible, provided that proper steps are taken.

The most unfavourable circumstances are those in which we get a shallow soil on chalk, combined with a low site and strong spring gales. The shallow soil and the chalk favour weak growth, the low site late frosts, and the spring gales the destruction of blossom. Happily such a combination is uncommon. Fruit can only be grown well in such circumstances when surface-rooting stocks are used, when the soil is deepened by loosening the chalk and making liberal applications of manure, and when special protection is provided.

The most favourable circumstances are those in which we have a deep, loamy soil, and a slope to the south or south-east. The fertile soil will encourage vigorous growth, and the warm slope will tend to prevent the destruction of the flowers by late frosts.

The majority of people will be so situated as to come between the two extremes, and satisfactory results are possible in the majority of cases without any serious outlay. It is in favour of success that in private gardens there can be greater concentration of effort than in orchards of many acres. The soil can be more thoroughy deepened and enriched, and—equally im-

portant—adequate shelter can be provided. Clay soils are not naturally suited to apples, but if they are well managed they will give good results in the case of several excellent varieties, which shall be named presently. Very sandy soils are not suitable for fruit, and need the addition of plenty of manure, as well as of leaf-mould and clay, to make them produce good crops.

The fruit grower who takes real interest in his trees (and, once studied, they will become quite as interesting as motor-cars and flying-machines) will speedily learn how to adapt soils to fruits, and fruits to soils. With a little of both, failure is very unlikely.

We ought to start the preparations for our fruit garden directly the summer begins to fade, in order that we may be ready to plant our trees in November. The ground may be under vegetables, such as potatoes, beans, onions, and carrots, in which case we should start directly they come off the ground. Fruit trees may be planted up to early April in most (but not in very dry, light) soils, but it is not prudent to leave the preparations until spring, because then they may have to be made hurriedly, and less thoroughly than is desirable.

If the ground is under turf, a start can be made in September or October. If the turf is to be relaid in another place October will be early enough, especially if September is hot and dry, as the conditions are then unsuitable for relaying.

The more unfavourable the soil is, naturally, the more important it is to move betimes. Suppose, for instance, that the grower has a stiff clay soil, and does not make a start till spring; he is at the mercy of the weather. Should it be dry the soil will be accessible, and will probably break up readily; but should it be

wet the soil will be inaccessible, and may continue so for a considerable time, as it is altogether imprudent to work clay soil when it is very wet. The fruit grower is in different case from the vegetable grower. The latter can afford to let his clay soil lie undug until spring, and run the risk of having the work delayed by bad weather, because he can put his seeds and plants in quite well after mid-April ; but the fruit grower cannot put his trees in so late with safety.

In the case of light soil it is even more important to move early in autumn, as it is very desirable to get the trees planted early, and rooting before winter comes. Light soil is greatly improved by autumn cultivation. If deeply and thoroughly broken up it holds far more moisture than unworked soil, and for a light soil moisture is almost everything.

One other reason in favour of an early start has been mentioned already. It is that there is practical certainty of all the varieties one wants being readily obtainable, whereas if the purchase is left until spring, some that are particularly wanted may be sold out, and the nurseryman sends a substitute that we do not care for.

We start, then, in late summer or early autumn. While our ground is in course of preparation we order our trees. There may be a fruit-nurseryman in our own neighbourhood whom we should like to patronise, or there may be a particular one who has been recommended to us by a friend. It is certainly some advantage to employ a man who knows our soil and district. But if no such consideration exists we shall write to several reputable firms for catalogues, such as Bunyard & Co., of Maidstone ; Cheal & Sons, of Crawley; Rivers & Sons, of Sawbridgeworth ; Pearson & Sons, of

Lowdham, Nottinghamshire; Dickson & Sons, of Chester; and Veitch & Sons, of Chelsea. There is really very little to choose between these six, and another half-dozen could be named practically as good. The only consideration that need weigh is the character of the soil in the nursery and at home. If the home soil is poor it would be useless to expect trees from a rich-soil nursery to go on growing as they had been doing. Heavy soil to light, and light to heavy, might also prove inharmonious. Buyers whose soil is clay might order from a heavy-soil nursery, such as Cheals'. Those on chalk might order from a firm which has chalk land, such as Clarks', of Dover. In this matter of soil the point is that if the home soil is suitable for fruit you can buy from any soil you like; it is only a question of getting good trees. But when the home soil possesses any peculiarity it is wise to consider whether it cannot be humoured with advantage.

The fruit catalogues are out in October, and it is a capital plan to order the trees at once, and ask the nurseryman to send them directly he is ready. They will probably come some time in November. If we are not quite ready for them when they arrive, our best plan is to lay them down and cover the roots with soil. There need be no fear of their drying then, or being injured by frost. The choice of varieties tends to be a rather troublesome matter, because the number is so great, but we will deal with that in a special chapter.

We have considered the "when" of planting, and now we may consider the "how." This would appear to be simple enough—just make a hole, and put the tree in—"be aye sticking in a tree." But that will not do. We will go to work as though we were the wisest of professionals. But when we consider the ways of

these great men, we find that they have their little differences. In years gone by the fruit planter used to make a deep, narrow hole, cram the roots into it, and settle them into their places with a capacious foot, generously booted. Then a new generation arose, and smote the old one. It declared that his violent plan was wrong, because it crowded the roots together in a confined space; that roots did not spread freely enough, or multiply sufficiently; that the tree, consequently, was not well nourished; and that it grew slowly, or became actually unhealthy. This new school became the popular one, and when it taught fruit planters to make wide, shallow holes instead of deep, narrow ones; and to spread the roots well out instead of cramming them into a mass, it was obeyed. Fruit trees throve under its teaching, and all appeared to be peace among professional fruit growers, when along came an experimentalist with a theory (supported by some orchards of his planting) to prove that the narrow-hole-cramming plan was right after all. Then followed portentous "papers," learned arguments, and no end of prophecies of ruin and disaster from each side if its methods were not adopted.

The real point is this:—Fruit trees on standard stocks, which have strong, hard-driving roots, may be planted with advantage in narrow holes, because their roots can penetrate the firm soil immediately around them, and get that tight hold which is so desirable in windy districts, where trees with tall heads are liable to be uprooted by heavy gales. Trees on dwarfing stocks, which have masses of flexible, fibrous roots, are best planted in wide, shallow holes, so that their roots can spread freely. They do not strike down so deeply, or get so tight a hold, as the other trees, but then they

are not subjected to so much wind sway. In all cases the soil wants to be well trodden about the roots. The planter need not be afraid of seeing a fifteen-stone labourer apply a foot of the dimensions of a half-bushel measure to the soil among the roots. The more intimate the contact of the soil with the roots, the more likely the trees are to thrive.

It may be pointed out that the logical conclusion to a suggestion of thoroughly firming the soil is that the latter should not be broken up at all, except to get a little loose earth to cover the roots with. But there are other considerations. In the case of stiff land, unbroken earth cracks badly in dry weather. And unbroken light land is generally dry. No, the earth must be broken, and it ought to be deeply broken (two feet is none too much), but when that operation is complete, and the trees put in, the top soil should be made as firm as possible.

The holes for the trees should be made in straight lines, and at uniform distances apart. The trees should be planted about as deeply as they had been in the nursery, as indicated by the earth mark on the stem. The stakes for standard trees should be put in at the same time as the trees, should be sharpened at the base, and should be long enough to be driven down into unbroken soil. The trees should be tied to the stakes at the top, and some soft substance, such as straw, or cloth, should be used to prevent tree and stake rubbing together. The fruit grower who cycles or motors may save his old inner tubes for this purpose. When the rubber is cut up into strips it serves admirably.

When the trees have been planted, it is a good plan to spread some manure around them. If its appearance is objected to in a garden close to the house, a little

earth may be scattered over it. If the soil is at all poor, decayed manure ought to be dug in liberally before planting. The necessity for this turns entirely upon the character of the soil. Deep, fertile, loamy soils need not be manured under the trees, lest the growth made should be too luxuriant to be fruitful, and need root pruning. On the other hand, light soils might not give enough growth without manure to help them.

A person who is unable to form an opinion as to the quality of his soil for fruit, and its requirements in respect to manure, can easily get advice in these days of practical horticultural journals, and of county horticultural instructors. All he has to do is to send a sample (preferably a large one) of his soil, and as accurate a description as he can furnish of the natural conditions, to one of these sources of information, and he will get useful help. The county horticultural instructor is now a fixed institution, and he is always traceable through the secretary of the County Council education committee. In years gone by folk planted fruit trees with the same cheerful thoughtlessness that they assisted in the increase of the population. Now, so far as the fruit trees are concerned, they are more careful. The matter of the population is "another story," and does not concern the present work.

CHAPTER IV

WHAT VARIETIES OF FRUIT TO CHOOSE

We have said that fruit-growing is an interesting study. We might go even further, and describe it as a fascinating one. The "golf habit" is said to have been the means of creating a large number of grass widows. These forlorn wives suffer because they have not had wit enough to devise some counter-attraction for their lords. When a woman finds that her husband is in the way for getting golf-bitten she should (provided that she really wants to keep him at home) lure him into studying fruit-growing. When once he is fairly embarked, the merits of pruning-knives and sécateurs will be more keenly discussed than the qualities of different "irons." He will no longer dream of huge "drives" and masterly "putts," but of angles for training and points for summer pruning.

She must not permit him to pore over catalogues of varieties too soon, however, because they are crammed so full that he becomes bewildered and alarmed. Why, he asks himself despairingly, do nurserymen put nearly a hundred sorts of apples in their lists, to say nothing of numerous pears, plums, and cherries? Surely nobody ever wants to grow a hundred varieties of apples? The reason, my dear sir, is that the nurseryman knows that he has a very large number of people to please, some of whom like one thing, and some another. He is afraid

that if a prospective purchaser, who has made up his mind to have one or two particular varieties, does not find them in his list, but does in another, he will go to that source, not only for those one or two varieties, but for everything else he wants as well, thenceforth and for ever.

It is some such case as that of the milliner, who fills a shop window with hats and bonnets. She dare not put in a small selection, for fear the buyer should pass on, and, once gone, never come back again. She puts in a large number of different styles, in order to draw the buyer in.

There are far too many varieties of apples, of course, and it would tend much to the peace of mind of many buyers if the number were greatly reduced, but unfortunately there seems very little prospect of that. If anything, the reverse is the case, because new varieties keep coming out and swelling the lists. And it would be difficult to get any agreement as to what should be eliminated, in view of the fact that soils and districts have so great an influence on sorts. A variety which is of the finest quality on one soil is worthless on another. It is much to be feared that we must rub along as we are going now.

There are various ways of cutting down the lists of varieties to proportions which will suit our own particular cases. First of all we may, in submitting our soil to the horticultural editor or the county horticultural instructor, and asking him what kind of fruit it is suited for, press him on the score of apples, and tell him that if it will do for that important fruit he will place us under a still further obligation by naming some varieties that would be likely to thrive. Then we can make a few inquiries in the neighbourhood, particularly from

gardeners who have a soil like our own. The average professional gardener is one of the most obliging men in the world—unless you begin by telling him that his grapes are much inferior to a rival gardener's, and that his way of training peaches is all wrong. Omit these unnecessary preliminaries, or, better still, substitute for them a complimentary reference to the condition of his chrysanthemums, and he is your friend and adviser for life. Local conditions have a great bearing on the success of apples, and consequently local knowledge is of inestimable value in making a choice.

If these channels of information are not open to the planter there is still a resource, and that a by no means insignificant one; it is to make one's selection from among the varieties which one hears, sees, and reads most about. There are certain apples which all the world knows something of, and that fact bespeaks certain all-round qualities. The chances are that among them there are some which we want. Let us glance at a list of such varieties.

Select Culinary Apples

*Annie Elizabeth.
*Beauty of Kent.
Betty Geeson.
*Bismarck.
*Blenheim Orange.
**Bramley's Seedling.
Cellini.
*Cox's Pomona.
*Duchess of Oldenburg.
**Ecklinville Seedling.
*Emperor Alexander.
*Frogmore Prolific.
*Gascoyne's Seedling.
*Golden Noble.
Grenadier.
Keswick Codlin.
Lady Henniker.
**Lane's Prince Albert.
**Lord Derby.
**Lord Grosvenor.
**Lord Suffield.
*Manks's Codlin.
Mère de Ménage.
*New Hawthornden.
New Northern Greening.
**Newton Wonder.
**Peasgood's Nonsuch.
**Potts's Seedling.

Sandringham.
**Stirling Castle.
Stone's.
The Queen.
Tower of Glamis.
Waltham Abbey Seedling.
**Warner's King.
**Wellington (Dumelow's Seedling).

If the grower were able to plant thirty-six sorts well and good; here they are. If he were only able to put in twenty-four let him grow those marked with both one and two asterisks. Should he be compelled to confine himself to twelve he might choose those marked with two asterisks. Both selections include early, mid-season, and late varieties. They are made on the supposition that the soil is not very heavy. Should it be clay, the buyer had better omit Lord Suffield and Wellington, splendid apples though they be, the former for early productiveness, the latter for flavour. The following should thrive if the management is good :—

Apples for Heavy Land

Beauty of Kent.
Bramley's Seedling.
Domino.
Duchess of Oldenburg.
Mère de Ménage.
Newton Wonder.

It is better to grow several trees of a few selected varieties on cold, heavy soil, than to grow single trees of a large number of sorts, the suitability of which is not known.

A brief digression may be permitted to answer an imaginary question as to whether anything can be done to rectify an error in selection, other than by pulling up the trees and putting in fresh ones. The answer is, Yes, by grafting. Two or three years may pass before the grower becomes convinced that certain varieties are not

going to succeed. They may show it by making very weak growth, or by cankering badly. If some sorts thrive and others do not under identical treatment, it may fairly be assumed that the soil is not hopeless, but that all it wants is suiting. How can it be suited better than by grafting the sorts that do not thrive with those that do? Annie Elizabeth, Blenheim Orange, Bramley's Seedling, Lord Derby, and Ecklinville Seedling generally make good change varieties. To the lay mind it seems strange that a tree which grows weakly may be made to grow strongly, and one that cankers to grow healthfully, merely by taking off its head and putting on a new one, especially as the new head consists of a few small shoots; but the fact remains that grafting is often thoroughly successful in both respects.

The time to graft apples is the early part of April, and the way is as follows: Take some young growths off the change varieties, and cut them into portions about as thick as a fountain pen and four inches long; this will give three or four buds on each. Cut the lower end (that is, the reverse direction to which the buds point) in a long slant. About the middle of the cut make a second one, upward, and well into the heart of the shoot, so forming a tongue (hence the term "tongue" grafting, or sometimes "whip" grafting). Next prepare the unsatisfactory tree for the reception of these grafts or scions by cutting off the top, reducing each branch to a short stump, and preparing the ends in the same way as the scions, except that the first slanting cut is an upward one, and the second a downward one. Another tongue is thus formed, into which the tongue of the scion is fitted. The two should then be bound together, and painted over with a wax made

by melting together four parts of resin, two parts of beeswax, and one part of tallow, which will exclude the air. The buds will soon swell and grow.

Reverting to our selections, we may now give consideration to dessert varieties of apples, and begin, as before, with a fairly long list of the leading varieties.

Select Dessert Apples

Irish Peach.
**Mr. Gladstone.
**Beauty of Bath.
*American Mother.
Lady Sudeley.
**Worcester Pearmain.
**Allington Pippin.
Duchess's Favourite.
**Braddick's Nonpareil.
*Adams's Pearmain.
Fearn's Pippin.
**Rosemary Russet.
**Baumann's Winter Reinette.
Colonel Vaughan.
Cornish Gilliflower.
**King of the Pippins.
Red Astrachan.
*Chelmsford Wonder.
**Cox's Orange Pippin.
*James Grieve.
*Hormead Pippin.
*Blenheim Orange.
Margil.
**Ribston Pippin.
Wyken Pippin.
**Court Pendû Plat.
**Sturmer.

To reduce the above list we may choose the varieties marked with one or two asterisks for a selection of eighteen varieties, and those with two asterisks only for a selection of twelve. In each case provision is made for early, mid-season, and late varieties. If our soil be clay we may expect Worcester Pearmain and Allington Pippin to do better than Ribston, or even the incomparable Cox's Orange Pippin, although the latter sometimes does well on clay. Both the Worcester Pearmain and the Allington Pippin are good change varieties, and may be used for grafting unsatisfactory trees. Where Cox's does not thrive it should be grafted with Allington Pippin, a more modern and more vigorous variety, but

not quite equal to Cox's in flavour. It is unfortunate that the delicious Ribston is so capricious and fastidious. It is still unmatched for flavour. It makes no pretence of thriving on cold, stiff land, and should never be planted in quantity on such soil, although an odd tree may be tried. It is best to plant it high up, and give it a barrow-load of turves, leaf-mould, and manure, in order to keep the feeding roots out of the clay.

Although the pear does not rank so high in popular estimation as the apple, it is even more esteemed as a dessert fruit. A really flavoursome variety, like Doyenné du Comice, or Beurré Hardy, or Marie Louise, or Doyenné Boussoch at its best (at its worst it is uneatable) is a delicious *bonne bouche* to a good dinner. Pears are not more difficult to grow than apples, and there is no reason worth considering why a small collection at least should not be grown in every garden, unless we are burdened with an extraordinary combination of unfavourable circumstances, such as low site, exposure, and bad soil.

Perhaps the ideal pear soil is a medium loam, neither sandy nor clayey. But pears will thrive on clay if it is fertile and well cultivated, especially if they are on the shallow-rooting quince stock. The writer has proved this to his own complete satisfaction. He has grown a large collection of apples and pears successfully as cordons on clay. Some varieties did better than others, but there was no absolute failure. He took care, in the first place, to buy trees from a clay-land nursery; and in the second to give regular winter surface dressings of manure, which helped to keep a web of feeding fibres near the surface.

The number of pears is greater, if anything, than

that of apples. Here are some of the best known varieties :

Select Dessert Pears

*Beurré d'Amanlis.
* „ Clairgeau.
„ Diel.
„ d'Aremberg.
** „ Hardy.
„ Superfin.
**Clapp's Favourite.
**Souvenir du Congrès.
Jersey Gratioli.
**Conference.
*Olivier de Serres.
*Bergamotte Esperen.
Citron des Carmes.
*Winter Nelis.
*Thompson's.
**Marie Louise.
Marie Louise d'Uccle.
*Doyenné Boussoch.
** „ du Comice.
*Pitmaston Duchess.
*Fertility.
**Marguerite Marrillat.
Beacon.
**Josephine de Malines.
*Durondeau.
*Jargonelle.
Seckle.
Marie Benoist.
Easter Beurré.
**Maréchal de Cour.
General Todleben.
Fondante d'Automne.
**Emile d'Heyst.
**Williams's Bon Chrêtien.
*Glou Morçeau.
Duchesse d'Angoûleme.
Madame Treyve.
Zephirin Gregoire.
**Louise Bonne of Jersey.

As before, asterisks help us to selections of twenty-four and twelve respectively, arranged in order to give successions of fruit. It may be confessed, however, that the list of twelve has been chosen rather with an eye to flavour than vigour. Marie Louise, Doyenné du Comice, and Maréchal de Cour are three of the most delicious pears that we have, but they do not thrive in cold, exposed places. They are safe as cordons, with shelter. If specially hardy pears are wanted, Beacon, Beurré de Capiaumont, Fertility, and Louise Bonne of Jersey might be chosen.

Culinary pears cannot compare in importance with apples, and it is unnecessary to grow more than two,

say Catillac and Uvedale's St. Germains. The former may have the preference if only one is wanted. It is a large, handsome, solid, highly-coloured, long-keeping pear.

Plums must engage our special attention, as it is important to get thoroughly reliable varieties of this valuable fruit. We know that plums will thrive on light, loamy soils, and we know also that they will succeed on clay provided it is well managed, particularly in regard to manuring the surface.

Plums are not keeping fruits like apples and pears, but we can get a fairly long fruiting season by making a wise choice of varieties.

Select Cooking Plums

Autumn Compôte.
*Cox's Emperor.
Diamond.
Early Orleans.
Gisborne's Prolific.
**Monarch.
*Pond's Seedling.
President.
**Rivers's Prolific.
The Czar.
**Victoria.
*White Magnum Bonum.

Select Dessert Plums

Angelina Burdett.
*Belgian Purple.
Bryanstone Gage.
**Coe's Golden Drop.
**Denniston's Superb.
**Early Transparent Gage.
*Jefferson's.
*Kirke's.
Late Transparent Gage.
Oullins Golden.
Reine Claude de Bavay.
Washington.

The asterisks give us selections of six and three varieties respectively.

The plum lover often likes to add a damson to his collection, and he may choose the variety called Bradley's King.

Let us now turn to cherries. Here our task will be much more easy than it was with apples and pears. There are not so many varieties in existence, and if there were we should certainly ignore them, because we do not want more than three or four.

Select Cherries

Bigarreau.
**Black Eagle.
„ Heart.
**Early Rivers.
Elton.
Governor Wood.
*Kentish Red.
May Duke.
*Morello.
**Napoleon Bigarreau.
Waterloo.

Those marked with two asterisks are excellent dessert cherries, and those marked with one asterisk are good for cooking and preserving.

In the chapter on fruit houses we gave ourselves selections of peaches and nectarines. So far as the garden is concerned, we can only expect success with these fruits when they are grown on walls, and shielded from cold winds, otherwise they will be killed by "blister."

The following are relatively hardy varieties:

Peaches

*Alexander.
Amsden June.
*Dymond.
Early Grosse Mignonne.
Goshawk.
Princess of Wales.
*Sea Eagle.
Stirling Castle.
Waterloo.

Nectarines

*Dryden.
Hardwicke.
*Lord Napier.
Spenser.
*Stanwick Elruge.

Those marked with an asterisk might be chosen for a selection of three varieties in each case.

We shall probably require only one apricot, or two at the most, and we will choose Moorpark and Blenheim, the former if we only require one. It is apt to die away, especially in rich, loose soil, but it is too delicious to be passed over. Firm soil, in which lumps of chalk, or mortar rubbish, and rubble, play a considerable part, is desirable.

Very few people grow many varieties of the soft fruits, although here and there a person is met who specialises with gooseberries.

Select Currants

Red.	*White.*	*Black.*
Fay's Prolific.	White Dutch.	Baldwin's.
Red Dutch.		Boskoop Giant.

Select Gooseberries

For tarts and preserving.	*For dessert.*
*Crown Bob.	Pitmaston Greengage.
Keepsake.	Red Champagne.
Lancashire Lad.	
Warrington.	
*Whinham's Industry.	

**Choose for a selection of two.*

Select Raspberries

Carter's Prolific (dwarf). Superlative (tall, the best).

Select Strawberries

*Givons Late Prolific.	*Royal Sovereign.
St. Joseph (perpetual).	Sir Joseph Paxton.

**Choose for two.*

CHAPTER V

PRUNING FRUIT TREES

It is hoped that the fact has been satisfactorily established that fruit growing is thoroughly interesting, and when we come to a consideration of pruning we approach the most interesting part of it. Pruning is one of those fascinating subjects which horticulturists love to write about, to read about, to practise, and to disagree upon. They argue over both times and methods; whether pruning is best done in autumn, winter, or spring; whether it should be moderate or severe; whether knife or sécateurs should be employed; whether newly-planted trees should be pruned immediately, a year after planting, or not at all, and on many other subjects.

The first conclusion which the thoughtful person comes to, irrespective of any special knowledge which he may possess, is that as practical men base their arguments on experience, and as experience teaches one man a certain thing and another something quite different, it follows that pruning is not a matter for dogmatism. That is certainly true. A person of limited experience might attempt to lay down an unalterable law for pruning apples; but another of wide experience would be chary of doing so. The former may have observed what follows when a certain set of conditions operate, and it may not have occurred to him that a different set of conditions may lead to a totally different

result. Unhappily, the dogmatic person often carries the sway because he *is* dogmatic. He is sure of himself, the more experienced man is not. The assertiveness which admits no qualification is taken for the strength of knowledge ; the modesty which hints at compromises is regarded as the weakness born of ignorance.

The folly of dogmatism is most apparent to those whose experience is varied enough to teach them the wide differences between varieties. Just as some roses grow strongly, and need light pruning, while others grow weakly and need severe pruning, so some apples have far more natural vigour than others, and need different treatment.

We will bear this point in mind in our present consideration of the subject of pruning, and give it as much weight as we can, consistently with dealing with the matter concisely. To individualise every apple grown would fill several volumes.

In speaking of the formation of young trees in an earlier chapter, it was mentioned that nurserymen raise them by budding and grafting on various selected stocks, and cut them back in order to get strong basal growths. This early pruning in the nursery garden is general, whether bushes, pyramids, standards, fans, or espaliers are being formed, and the exceptions to the rule are few. Apples, pears, plums, cherries, gooseberries, currants—all have an early shortening in order to prevent the trees from breaking strongly at the tips and weakly at the base. The result of this treatment is that when fruit trees reach us from a good nursery, they have several branches of medium strength—a strength, however, which varies in degree with the variety. And what we have to consider is how we shall treat them when they come into our hands. Shall we shorten them

again? If so, to what extent? Or shall we consider that the nurseryman has done all that is necessary in this respect?

It will help us to understand our subject if we give a few moments' consideration to the system of trees, and learn to distinguish between the fruiting and the growing parts.

Apples bear mainly on what gardeners call "spurs," which are short, thick stumps, furnished with broad, plump buds on wood of two years or more old. The growing buds of apples are generally situated on the young wood, and are thinner and more pointed than the fruit buds. The following qualifying statements are necessary, however: (1) Fruit buds will develop on wood a year, or less than a year, old if summer pruning is practised. It must not be taken as an inflexible rule, therefore, that apples only fruit on old wood. (2) There are a few varieties, *e.g.* Cornish Gilliflower, Irish Peach, and Lady Sudeley, which do not bear on "spurs," in the body of the tree, but on the tips of the shoots. (3) When apple trees are kept open—that is, free from thick, interlacing tangles of stem and leaf—and when the growth is a happy mean between weakness and luxuriance, and gets firm and ripe in summer, fruit buds will form on the stems without the formation of "spurs."

It follows from the foregoing that the first consideration in pruning an apple is to shape it in such a way as to get an even spread of branches that do not cross each other; and that the second is to get moderate vigour of wood combined with ripeness.

As to shape. If we buy a tree three years old from a good nurseryman, it will, as we have already seen, have been cut back, and have become furnished with a few branches—probably six or eight. Let us examine the

tree carefully, and note the vigour and maturity of the wood. If the branches are moderately vigorous—say from two to two and a half feet long, we can shorten them by three parts of their length after planting. This will apply to the great majority of varieties. If, however, the branches are few in number, and very strong, as may be the case with a few highly vigorous sorts like Newton Wonder, Emperor Alexander, Bramley's Seedling, and Blenheim Orange, we shall be wise to avoid cutting back, on the ground that it would result in too much growth. These extra strong growers are generally slow fruiters, and it is root rather than branch pruning which they want. The roots ought to be bared two years after planting, and strong ones shortened.

It may certainly be said of apples generally that young trees are the better for being shortened after planting, even after the nurseryman has done his share. The younger the tree the more necessary the shortening is. The older the tree the less necessary it is, or ought to be. For example, a four or five years old apple bought from a good nursery ought to be well furnished with fruit "spurs" on the lower parts of the branches, and it would be a great pity to cut all these away. It is preferable to severely thin the fruit while it is quite young the first year, picking off all but half-a-dozen on each tree, and those on the lower part of it, not on the upper, as there they would hinder free growth, and perhaps pull the young tree out of shape.

People who want fruit at once are averse to early pruning. They do not see the necessity of it, and think that it retards the fruiting. They are often encouraged by seeing or hearing of instances of success with non-shortening. But if these cases are inquired into, it will generally be found that the soil and situation are ex-

ceptionally favourable to fruit trees, and cannot fairly be taken as guides to general practice. Shortening after planting does retard fruiting, but it does so for the future benefit of the tree. When fruit trees are planted in autumn, the shortening may be done at once; when planted in spring, it should be deferred until the buds near the tips of the branches have broken into growth. It is a good rule in this, as in all other phases of pruning, to cut as close to a bud as possible without injuring it, and to cut to a bud on the outside of a shoot, not on the inside.

If apple growers made it a rule to restrict their trees to ten or twelve main branches, whether dwarfs or standards; to have those ten or twelve branches at least two feet apart midway between base and tip, and to have every branch growing outward, far more, and far better, fruit would be gathered than is the case now. It is not the number of branches, but the character of the wood which decides the quantity and quality of the fruit. If the wood is firm, ripe, clean, and healthy, it is more likely to bear good fruit than if it is soft, unripe, and cankery. Thin, outward training makes for ripeness and health. Thick, tangled growth makes for softness and canker. *Ergo:* keep your trees open.

When an apple tree is formed, it consists of a given number of main branches, and an unlimited quantity of small shoots (collectively called "breastwood" by gardeners), which break from them in spring. The routine pruning consists of the management of this breastwood. It has to be cut in, and the reduction may be done in two operations, or in one only. It consists of two operations when we practise summer pruning, of one only when we omit summer

pruning. It may be said of summer pruning that it is advisable, but not absolutely necessary. No one who has had much experience of summer pruning can doubt that it makes for increased fruitfulness. The difficulty is, that when the proper time for the operation arrives, there is an immense mass of pressing work calling for attention, and it is difficult to spare time for tasks which, although desirable, are not absolutely essential.

The reason why summer pruning is advisable is that it helps the natural process of converting a wood bud into a fruit bud. There is generally a bud near the base of the summer shoot, and it is a potential fruit bud. If the shoot is cut through, or broken off, about six leaves from the basal bud in summer, there is a concentration of sap on the latter, which helps the natural process of development into a fruit bud. There is a considerable difference of opinion among fruit growers as to the best time for summer pruning, some liking to do it in June or early in July, while growth is still active; others about the middle of August, when the summer growth is nearly over. The drawback to early pruning is, that it often results in fresh growths starting from buds above the basal one, and these must be stopped in turn, or the object in view would be defeated; thus, summer pruning becomes a twofold operation. By deferring the stopping until mid-August the grower generally avoids the necessity for a second stopping, as there is rarely enough active growing energy left to start fresh shoots.

Summer pruning, which is advisable for nearly all apples, is particularly so in the case of those grown as cordons, which are so close together that they would interlace if no stopping were practised. Espalier and

other trained trees are also greatly benefited by it. In autumn or winter the stumps may be cut back close to the basal buds, which may be expected to steadily become plumper, and to form blossoms in the spring.

What is termed the winter pruning of apples and other fruit trees may be done at any time, from the fall of the leaf in autumn to the first swelling of the buds in spring.

There is prejudice on the part of some fruit growers against pruning during frosty weather, on the ground that the freshly-cut surfaces are liable to injury. The danger is a very remote one, and need not cause any alarm. It is often a great convenience to prune when the ground is hard, especially in the case of clay soils, which are best kept away from when wet and soft, because they get trodden into a pasty mess—a state of affairs which is likely to do far more injury than accrues from frost. The fruit grower is wise to get his pruning done as early as possible, then he will have plenty of time to get his garden cleaned and dug before spring comes, with its ceaseless flow of other tasks.

A sharp pruning-knife and pair of sécateurs will both be useful. On quite small trees, where every branch to be cut is easily got at, the knife may be preferred, because it makes a slightly cleaner cut, and one with a longer slope. But the sécateurs will be found extremely convenient in the case of larger trees, especially when the pruner is working on a ladder, and requires one hand to steady himself upon it. Only a very skilful pruner can hold a shoot which he cannot reach, except at arm's length, steady with a knife, and cut it through neatly and cleanly at the same time; most pruners would make more cuts in their thumb than in the wood.

With sécateurs it is easy. Sécateurs should be quite sharp, or they will grind the face of the cut. It is unwise to strain them on very thick shoots; use a small saw instead. The springs and joints should be kept well oiled.

It has been previously remarked that a shoot should be cut as close to a bud as possible. It is easy to cut so low as to partially undermine the bud, and leave it seated insecurely; but it is equally easy to avoid this, and still cut without leaving a long stump above the bud. The cut should slope from the bud, not towards it.

For tall trees it is possible to get a pruner mounted on long shafts. There is one called Coppin's which does its work remarkably well, and can be bought through any fruit nurseryman in a fairly large way of business, or through the stores.

Apples need root pruning when they grow very strongly, and the wood which they make is so gross and unripe as to be unable to mature fruit buds. This state of affairs is not at all uncommon with the bulk of the sorts grown where the soil is very fertile, and is enriched with a great deal of manure. Growers who have good fruit land make a double mistake in digging large quantities of manure into the holes at planting; they waste manure in the first place, and they waste time through the necessity for root pruning which arises in the second place. Of course, there are a few sorts of apples which naturally grow strongly; they are over-vigorous in all except the poorest soils, and the necessity for root pruning may arise without any errors in over-manuring.

The necessity for root pruning is easily seen. As long as a tree makes moderate growth, and blooms

regularly, leave the roots alone; but if it makes vigorous growth, and misses more than one year's flowering, root prune. In case any one should feel dubious as to the practical interpretation of the terms "moderate" and "very vigorous," it may be said that the summer growth of an apple tree ought not to exceed thirty inches in length; if it does, it is getting very near to the point of luxuriance and softness which means sterility. It should be understood that non-blossoming is more often a sign of too much vigour than of poor health. A debilitated tree will often blossom regularly, but lest any one should insist that the logical outcome of this is that unhealthy trees are better than healthy ones, the writer would hasten to add that the weak tree may quickly die, when it will bear no fruit at all.

If a small tree is growing too strongly to be fruitful, it may be root pruned by the simple process of lifting it in winter, trimming any broken roots with a sharp knife, cutting through any strong or deep-striking ones, and then replanting it. A large tree cannot be disposed of quite so easily. The orthodox plan is to cut a trench half-way round it, following a radius described by a vertical line drawn from the tips of the branches to the ground. Any roots which are found may be cut through. If none appears when the trench has been made eighteen inches deep the pruner must work towards the bole, because the tree may be on a non-dwarfing stock, in which case it will probably have some strong roots going down almost in a line with the main stem. These should be shortened. If the first pruning does not suffice, the complete circuit of the tree can be made by doing the other half the following year.

In the case of a fruit tree against a wall, a trench

may be made three or four feet from the wall, and any roots which are found pruned.

The pruning of pears is somewhat on the same lines as apples, but the former fruit is an exclusively spur bearer, and there need be no exceptions to the rule of hard pruning. The trees should be shortened, as in the case of apples, to get a sufficient number of main branches; and then the breastwood must be pruned annually, preferably first in summer and again in winter, but certainly in winter. Root pruning may be practised on very vigorous, non-flowering trees in the same way as with apples; but, on the whole, pears are not so luxuriant as apples, and are more easily kept shapely and fruitful. Old wall pears may often be seen crowded with strong spurs, and on the ground that it is possible to have too much of a good thing, it may be advisable to even prune these, blossom producers though they are. But in all cases the young wood which grows out from the spurs must be pruned close in annually, as it is of no use for fruit production.

Plums and damsons are spur-bearing fruits. When they are young they are apt to make a great deal of gross, immature wood, and consequently to bloom and bear badly; they can be cured of this evil habit by root pruning—an operation which they are more likely to need than either apples or pears. When they have once settled down in firm, not over-rich soil, with a framework of ripe wood, plums are very tractable. They develop a praiseworthy habit of producing natural spurs, or short shoots which at the outset look as if they were going to make breastwood, but which stop extending after they have grown a few inches, and terminate in a bud. Gardeners call these little shoots "stubs," and leave them to develop fruit buds, which

they do naturally, without calling for summer or any other pruning. Inasmuch as the summer growth of a plum consists partly of these stubs, there is generally less to be pruned than in the case of either apples or pears, and summer pruning is not often needed, except in the case of cordons. But such breastwood as does form should be pruned in winter, the same as that of pears.

Cherries do not need a great deal of pruning. Like plums, they are very apt to grow too strongly when young, especially in very rich soil. The grower should add lump chalk or mortar rubbish to the soil; it is likely to do the trees more good than manure. If root pruning becomes necessary owing to excessive vigour it should be done quickly, as it is very desirable to get cherries well furnished with fruitful wood at the outset. When they are shaped early, deprived of any superfluous branches in summer, and root pruned to curb exuberance, they need very little pruning, as they form spurs and single fruit buds all along their main branches with the greatest freedom, and form only a moderate amount of breastwood. Differing from the "heart" cherries, the Morello is a young wood bearer, and should only have the breastwood pruned to the extent of securing neatness. Wholesale reduction would mean loss of crop.

The pruning of peaches and nectarines was referred to under indoor fruit, where it was pointed out that the trees are best grown fan-shaped, and that this form is secured by early shortening, and the selection of shoots starting from the base to form the ribs of the fan. These branches may be about a foot apart half-way from the base; the space between will serve for the breastwood, on which the fruit is borne, for the peach

is not a spur but a young wood bearer. The pruner will not retain every piece of breastwood that grows on a healthy tree, or he would have the wall crowded with shoots. He will first cut out all that spring from the front of the branches, and consequently stick straight out from the wall. These, which are termed "foreright" shoots, are of no use, because they could not be tied in to the wires along the face of the wall without being twisted. There will be, or ought to be, plenty without them, growing from the upper or lower side of the ribs, and consequently in convenient positions for being tied in. A fruiting shoot would throw out a number of side shoots in turn if it were permitted to do so, but it must not have that privilege. All the growth buds except two, one at the base and one at the tip, should be removed directly they start growing in spring. The process is termed "disbudding," and prevents the shoot from wasting its strength on unnecessary wood. The bud at the tip is allowed to remain because, in growing, it encourages a good flow of sap along the shoot, and this nourishes the fruit. The bud at the base is left because a fresh shoot is needed for fruiting the following year. When the fruit has been gathered, the shoot that bore it is pruned back to the basal shoot, which is tied in to take its place. There is, therefore, an annual routine of peach-pruning, this consisting of disbudding, and removing fruiting wood.

Peaches are apt to grow too strongly when young. Rich soil should be avoided, and root pruning should be resorted to if the trees do not flower.

Apricots are almost exclusively grown on walls. They need practically the same treatment as plums.

Of the soft fruits, gooseberries (mainly) and red currants are spur-bearers, thriving best with a limited

number of branches quite clear of each other, with summer pruning, and with winter spurring. As a rule, bushes are hardly thought worthy of the time taken up in summer pruning, and therefore receive only one cutting, in winter. Special sorts grown as cordons on walls or fences are generally summer pruned, and yield very fine fruit. Black currants are not spur bearers, and only need old fruited wood cut out; the young should not be pruned in, but left intact.

Raspberries, blackberries, and the loganberry, should be deprived of the old canes after the fruit has been gathered. The young canes that have grown during summer will give the following year's fruit.

PART V

THE VEGETABLE GARDEN

CHAPTER I

WHY WE SHOULD GROW VEGETABLES

FOR reasons that are not altogether clear, vegetables are supposed to occupy a lower place among cultivated plants than flowers and fruit. A cabbage is a species of stock jest, like a London policeman. If a turnip appeared on the stage it would be in some humorous capacity, connected with a rustic character of the type of William Worm, who always had a "fizzing" in his head.

It is for this reason, perhaps, that many people who form gardens do not think it worth while to make any provision for a kitchen garden. Flowers, of course; fruit, if possible; but vegetables, no, unless someone about the place is prepared to make himself responsible for them—"to have the bother of them," as it is put.

There is one member of the community who does not take this view, and that is the cottage gardener. He is invariably a great man for vegetables. He likes to fill up every square inch of ground that he has with potatoes, beans, carrots, and various other kinds. He may be an agricultural labourer, working from six in the morning till six at night in the fields; no matter, he will manage to squeeze an hour or two a day into his vegetable plot. Of course Hodge has a reason for this. He has a large and hungry family, and not much money to buy food with. A capacious dish of boiled

or baked potatoes goes a long way towards taking the edge off the appetites of his children. Then there is the village flower show, where he manages to pick up a pound or two in prizes, and that helps him along with the boots and frocks.

The town artisan, who earns higher wages, is not as a rule quite so keen on vegetables as the country man, nor is the small amateur. Both of these classes are given to specialising with a particular flower, such as the dahlia. Altogether, the poor vegetable has to play the part of Cinderella.

There is really a considerable amount of interest in vegetable-growing, for those who like to regard it scientifically. They find interest in many phases of it—in the effect of various fertilisers, in the comparison of different varieties, in the production of early crops, and in the cultivation of kinds that are not generally purchasable in the markets. It is really very desirable that more interest should be taken in the subject, because there would then be some prospect of raising the standard of vegetable cookery in Great Britain, which is now deplorably low. As long as the public merely regards vegetables as relishes, like salt or sauce, and takes no real interest in them, it is useless to expect that they will be well cooked.

It is appalling to see the horrible messes that pass muster for vegetable dishes, even in good-class restaurants, in England; and far from things getting better they seem to get worse. The public would not tolerate it for a moment in the case of meats or fish; why with vegetables? This is, of course, a stale story, but what can the writer do but repeat it who has a strong sense of the value of vegetables? However reluctant he may be to indulge in platitudes, he feels that he cannot

very well help himself. His view is that if vegetables are regarded as being good enough, either from the point of view of nourishment or flavour, to be put on the dinner-table in every class of household in the country, as is the case at the present time, they ought to be thought worthy of being both grown and cooked well.

The cultured classes generally put the blame for ill-grown and ill-cooked vegetables on to gardeners and cooks. On the face of it this seems fair enough. As gardeners are paid to grow vegetables, and cooks are paid to cook them, it is surely reasonable to expect them to do their respective duties well. But there is more than this in it. Employers should understand by now that the gardener class and the cook class often take their cue from those who pay them, and may not work to a higher standard than is set for them. When things go so radically wrong that they become intolerable, and the master of the house raises a storm, the gardener and the cook blame each other, each striving to prove that the other is in fault, and doubtless each equally convinced that there is no personal blame in the matter at all. The unhappy mistress emerges badly from this war; not knowing enough about vegetable-growing to test the capacity of the gardener, nor of vegetable-cookery to fathom the qualifications of the cook, she wrings her hands over the compound ineptitude of the lower orders, and goes on again, hoping for the best, but fearing for the worst. The proper remedy is to learn a little about the vegetables—what they ought to be like when well grown, and what they ought to taste like when properly cooked. It does not suffice to comment on the superior quality of the vegetables that have been eaten on the Continent. We cannot carry the Continental grower and cook back with us, and if we could they might get demoralised

quickly by our national slackness in the matter of vegetables.

We ought to grow vegetables, and grow them well, because they are valuable and wholesome food. We may all turn vegetarians if we like, but we need not do that to understand and appreciate vegetables. As a matter of fact, we do not always meet with good and well-cooked vegetables at the vegetarian restaurants by any means. Most of these establishments are apt to make too much of special concoctions that they call "vegetarian turkey," and so forth, and to give insufficient attention to plain vegetable dishes. Experience may have taught them that the best way of advancing their cause is to ape the animal kingdom with their dishes, but it hardly appears that this is justifiable if it means that they are not doing all they ought to be able to do to improve vegetable cookery, and to lead to more attention being given to plain, wholesome vegetable dishes which the majority of people can copy in their homes.

The analyses of fresh vegetables do not show that they are nourishing to the same extent as meat. In particular they are wanting in albuminoids, but the person who is not contemplating a purely vegetarian dietary need not trouble about that, because he is not proposing to substitute them for meat dishes. He is fond of vegetables, he believes them to be good for him, and he is satisfied to eat them in conjunction with meat. If this is not enough for the vegetarian protagonist, he must take his own measures for remedying it. It abundantly satisfies the majority of people. The pulses (peas and beans) are highly nourishing, and potatoes are of no mean value. But we must not assess the worth of vegetables purely by the amount of pectose and albumen that they yield under analysis. We must

allow for the importance of their juices, which is considerable. The writings of Mr. Eustace Miles are probably of more value than any analyses of vegetables that have ever been made. The tomato is a most valuable food, apart altogether from its analysis, and the same may be said of celery, onions, carrots, beetroot, and even the modest cabbage.

It is not suggested that the cultured classes should devote their attention to potatoes and other important crops alone. There are many vegetables which are erroneously classed as minor ones. They are really only minor vegetables from the point of view of the cottager, or any other class which demands large bulks of certain things that can be grown quickly and cheaply. To the classes that can afford to grow selected vegetables in small quantities, they are important. Among these may be mentioned such things as the turnip-rooted celery, witloef chicory, salsify, seakale beet, chards, and asparagus. The cottager may have to do without them, but that is no reason why other classes should.

The question of flavour in vegetables ought to receive special attention. Few people realise what differences there are between the varieties in this respect. Some sorts of apples have delicious flavour, others are commonplace; and it is the same with peas and beans, potatoes, and even cabbages. Well, why should we not learn the superiority of one pea over another, just as we do the superiority of one apple over another? This is a clear case for experimental work, and it ought to be always going on, because improvements are being made constantly. To take the green pea as an example, the vegetable has been completely revolutionised during the past twenty years, yet there are plenty of gardeners who

know nothing whatever about the good work that has been done, and who still grow the same peas that they did a quarter of a century ago. It is absurd to grow a pea of poor flavour when one of good flavour can be got just as cheaply. One might as well eat a tough old fowl of many summers when one could get a spring chicken.

CHAPTER II

A COMPLETE KITCHEN GARDEN

A COMPLETE kitchen garden must contain given proportions of vegetables (differing in quality with the character of the establishment), as well as representatives of special crops, such as those mentioned in the previous chapter.

Are we going to grow all the vegetables that will be required for the household during the whole year in the garden, and is our household one consisting of several hungry children, as well as two, three, or more servants? If so, we shall want at least half an acre of ground. But perhaps we prefer to buy the main supply of potatoes off some selected soil, in order to serve the double purpose of economising ground and getting special flavour? The latter is a course that should always be considered when the soil is too stiff to grow potatoes of the best flavour, and more especially when space is limited. It is doubtful if it pays to grow potatoes, because they can be bought as cheaply as they can be grown, except, perhaps, in the case of the first crop. Very early potatoes are generally dear, and it may answer to grow them in any case: moreover, early potatoes, which are generally small-topped sorts, do not take up an equal amount of room with the same number of rows of a late sort. If there is plenty of ground available, if an interest is felt in the crop, and if the soil is of a light, porous character, grow the whole of the potato supply by all means. In other

circumstances, and particularly if the soil is very heavy, be satisfied with growing a few rows of earlies, and buy the bulk of the supplies from good potato land—for instance, from the neighbourhood of Dunbar in Scotland, from Spalding in Lincolnshire, or from York. The potato is not like many vegetables—it is not necessary to have it fresh out of the soil to have it of good flavour.

The question whether other vegetables can be bought with advantage in the same way as potatoes, depends upon circumstances. One often grudges the room taken up by the coarser green vegetables, such as cabbages, savoys, and brussels sprouts; on the other hand, it has to be remembered that these are very poor in flavour unless perfectly fresh. If there is no supply except what is brought from a distance, and which cannot be eaten until it is a day old, it will be best to grow what is wanted. In most rural districts there is no difficulty whatever in getting all the plain vegeables which are in season perfectly fresh, and at very moderate prices.

Wherever space is limited, and labour is scarce, it is wise to carefully consider all the circumstances before making a large kitchen garden. But if we do decide to do it, let us do it well. The orthodox kitchen garden is surrounded by walls. These are not built for the vegetables, but for the support of fruit-trees and glass-houses; however, they prove valuable for vegetables as well as fruit. In front of them we form wide borders, on which we grow early crops. The inner border under the wall on the north side of the garden will have a south aspect, consequently it will be an excellent place for bringing on early things. We can push on early peas in a vinery, planting them outdoors in May, and thus secure much earlier crops than we should be likely

to get by sowing in the open air. Decidedly the walls and the houses are a great advantage; but, as we saw in our fruit section, a good wall will, in these days, be very expensive.

If we are not going to the expense of walls, we must provide our garden with the shelter of a close fence or hedge. Why shelter at all, it may be asked? Look what capital vegetables the allotment-holder often produces without a vestige of shelter. Yes, he does; but it is not often that he gets them early. It all—or nearly all—turns on that. We must have shelter if we are going to strive for early crops. If we have no thought of special earliness in our minds it is a different matter, and we may well save ourselves the expense of shelter.

Whether or not we have glass-houses, we ought certainly to have one or two frames, preferably two, because in the latter case we can put a hotbed under one and use the other for hardening off plants which have been raised in heat. Thus, we can raise and harden tomatoes, celery, vegetable marrows, and a good many half-hardy and tender flowers. And here is a point: kitchen gardens nowadays often contain borders of flowers, which brighten them up and render them more attractive in the eyes of those who can never bring themselves to see sufficient interest in vegetables to render the kitchen garden worth visiting for its own sake. We saw how useful frames were, and the approximate cost of them, in an earlier chapter. (See General Index for page reference.)

If a portion of the potatoes is bought, a quarter of an acre of ground will suffice to grow sufficient vegetables to keep half-a-dozen people well supplied throughout the year. Let us consider how we can lay it out to the best advantage.

We will first of all make provision for permanent crops, including a few of the choice things which so often get crowded out. There is asparagus, for instance. Two beds, each 4 feet wide by 12 feet long, will give an adequate supply if the soil is suitable—that is, light and friable, but fertile. If the soil is thin and poor, and especially if it overlies chalk, or if it is very heavy clay, it is not naturally suited to asparagus, and in view of probable lighter crops, it will be wise to allow more space—say half as much again. We will deal with culture presently.

Next comes seakale. This is as often lifted for forcing as cut from the ground, but in whatever way it is to be used, we must make provision for a good quantity. We might allow the same area for it as for asparagus, with the same condition of allotting more or less ground in accordance with the character of the soil. The necessity for this may not be apparent to people of limited experience, who will argue that all kinds of soil may be made equally suitable by cultivation; but those who have had much to do with asparagus and seakale know quite well that it is impossible to make a stiff soil as good as a friable one.

The third of the permanent crops to be mentioned is rhubarb; and this, like seakale, may be required for indoor as well as for outdoor forcing. If the demand is considerable, especially for roots to be lifted and forced indoors, we may well allot the same space as for the asparagus and seakale. It cannot be said, however, that the case for increased space on strong soil, in consequence of lighter cropping, holds good, because rhubarb thrives famously on heavy land; if anything, indeed, the reverse holds, and we ought to give the most space to rhubarb on the lightest land, where it will

not grow so vigorously, nor crop so heavily, as on cooler and more holding soil.

The three most important of the permanent crops are now provided for. The other forcing vegetable, chicory, will do with considerably less space. Two varieties are generally offered by seedsmen—namely, the common, and the large-rooted witloef. The latter is the splendid vegetable so extensively forced in Belgium. It is so fine as to rival seakale in size, and it is every bit as valuable an early vegetable, having a distinct and agreeable flavour of its own. The roots, as we shall see presently, are grown from seed, and lifted for forcing indoors. It may, indeed, be treated as an annual crop, the same as seakale sometimes is.

The Globe artichoke is a permanent crop, and the Jerusalem, or tuberous-rooted, is often treated as such, being allowed to remain undisturbed—except in so far as taking up roots for use when wanted is concerned—from year to year. As a matter of fact, it is better to treat it as an annual, the same as beetroot. If both kinds of artichoke are wanted, we ought to give the Globe a bed twelve feet square, and the Jerusalem four feet by twelve feet.

The remaining permanent crops are horseradish and herbs. Except in the case of a large establishment, with a very marked partiality for roast beef, half-a-dozen roots of horseradish will suffice, and they may be accommodated in any unoccupied corner. Beware, however, of forgetting them, because they may spread until they become as great a nuisance as any weed. It is a good plan to have a large bed of the various important herbs, such as mint, sage, thyme, marjoram, basil, tarragon, and savory, keeping them to themselves. A bed eight feet by twelve will accommodate plenty of

each, and it may be surrounded with a border of parsley, which will impart an air of neatness and finish, as well as prove useful in itself.

Having provided for the permanent crops, we may turn to the annual ones, which include such important things as potatoes, peas, beans, celery, greens, carrots, beetroot, parsnips, leeks, and tomatoes. These are called annuals because they are grown as such; in reality some of them are biennial or perennials.

It is a good plan to class them in four sections, because a rotation system can then be arranged. An exact rotation is not feasible in small gardens, where potatoes are grown in a much larger proportion than the other classes, but it is quite practicable when an early supply only is grown, because the few rows required will not take up any more room than is occupied by the other sections, and will fit in with them.

We might make four sections, and arrange a four course rotation, as follows :—

Section 1.	Section 2.	Section 3.	Section 4.
1st year. Peas, beans, celery, leeks.	*1st year.* Roots.	*1st year.* Greens, and onions.	*1st year.* Potatoes.
2nd year. Roots.	*2nd year.* Greens, &c.	*2nd year.* Potatoes.	*2nd year.* Peas, &c.
3rd year. Greens, and onions.	*3rd year.* Potatoes.	*3rd year.* Peas, &c.	*3rd year.* Roots.
4th year. Potatoes.	*4th year.* Peas, &c.	*4th year.* Roots.	*4th year.* Greens, &c.

Perhaps another plan will show the same idea a little more clearly :—

1st Year .	A Peas, beans, celery, leeks.	B Beetroot, carrots, parsnips, salsify, and scorzonera.	C Greens, onions.	D Potatoes.
2nd Year . .	B	C	D	A
3rd Year . .	C	D	A	B
4th Year . .	D	A	B	C

It will be seen that our four sections are respectively (1) Peas, beans, leeks, and celery ; (2) Beetroot, carrots, parsnips, salsify, and scorzonera ; (3) Greens and onions ; (4) Potatoes.

Manure can be saved by adopting this plan. A piece of ground manured one year for peas, beans, and celery, need not be manured the following year for the root crops ; it should be manured again the third year for the greens and onions, but will only need a light dressing of chemical manure for potatoes in the fourth season.

Like every other system of rotation cropping in a small garden, this is liable to be upset, and it may be well to take each section individually, and consider the worst that can happen to it.

"A" is not likely to give any trouble at all. The peas and beans will be cleared off in summer and autumn ; in fact, a crop of spinach or late turnips can be taken from the same piece of ground, and still avoid any interference with the succeeding crop of roots.

It is true that the celery and leeks may not all be used up when the time comes to prepare the ground for the roots, but what remain can be easily taken up and laid in earth in a spare corner of the garden, or even put into a shed or cellar.

"B" will not give any trouble either. All the roots will be lifted in autumn except the parsnips, and perhaps the scorzonera. It is wise to leave the parsnips in the ground all the winter, but if any remain when the ground is wanted in spring, they can be lifted and laid in an out-of-the-way place.

"C" may prove rather embarrassing. If we used it for cauliflowers and summer or autumn cabbages alone in the way of green vegetables there would be no trouble, because they would come off the ground before winter. But it is customary to follow onions with spring cabbages, which are planted in October, and those are not always ready to come off when the time comes to plant the potatoes, which are arranged to succeed them in the following spring. Again, if winter greens are planted on "C," the later kinds, such as broccoli and kale, are rarely finished before potato-planting time comes. The same difficulty occurs if the not uncommon plan of planting winter greens between potato rows is followed. The potatoes are cleared off in summer or autumn, the winter greens stand through the winter, and the later varieties of them will not be used up before April or May, thus tending to interfere with the next crop. Little hitches of this kind are unavoidable in any system of rotation cropping. The exercise of common sense generally suffices to get over them.

Section "D" will be quite straightforward if potatoes are grown by themselves, because they will be lifted

in summer or autumn, leaving the ground free for a "catch" crop, such as late peas, coleworts, or turnips, which will also come off in time to leave the quarter free for the succeeding crop—peas, beans, celery, and leeks. If winter greens are planted between the potatoes the case is altered, as already mentioned.

It will be seen that in the rotation mentioned the green and root crops come on the ground in alternate years, and that the principle is to manure for the former and not for the latter. Fibrous rooted green crops, like peas, beans, celery, leeks, cabbages, cauliflowers, and onions, are benefited by liberal dressings of manure; but beetroot, carrots, and parsnips, the eatable portion of which is below ground, are not. As to potatoes, yard manure undoubtedly increases the crop, but is liable to lead to disease, and hence the recommendation to put the crop on a piece of ground that was well manured the previous year, and to use chemical manures (the kinds and quantities of which will be recommended later) for the potatoes.

In view of the difficulty which sometimes arises—for instance, when potatoes are grown in a much larger proportion than the other sections mentioned — in maintaining a system of rotations, it may be consolatory to learn that less importance is attached to them by experts now than was the case in days gone by. The attitude of growers is rather that rotations are desirable than that they are essential. It is established that when the ground is thoroughly cultivated, and brought into good mechanical condition, excellent crops are possible, even when a proper system of rotations is not practised. Everything turns upon the cultivation. Poor, shallow soil, or stiff soil not properly broken up, will hardly give a good crop of any particular vegetable one year, much

less two or three years in succession. But if the soil is dug to a depth of eighteen inches, and well manured, it will do both. The moral of this, of course, is that the kitchen gardener should make the preparation of the soil his first consideration. He should attack it as early in autumn as he can; but if it is not acquired until spring, it is not of any great consequence, because spring working answers well. As a matter of fact, many good vegetable-growers prefer spring to autumn working, especially with clay soil; but inasmuch as there is generally more time available in autumn and winter, it should be done then if possible. The under soil can only be broken up after taking off the top layer, so that it is well to operate in strips. If top and bottom layers are dug over in turn to the full depth of a large spade or fork, and a coat of manure is put between them, the soil will be greatly improved. When starting with a fresh piece of ground, it is well to treat it all in this way for a start, bringing the modifications suggested in the remarks on rotations into play in future years.

A complete kitchen garden will contain the following crops, which are placed in alphabetical order:

Artichokes.	Chicory.	Salads.[2]
Asparagus.	Cucumbers.	Salsify.
Beans.	Herbs.[1]	Savoys.
Beetroot.	Horseradish.	Scorzonera.
Borecole.	Leeks.	Seakale.
Broccoli.	Mushrooms.	Shallots.
Brussels Sprouts.	Onions.	Spinach.
Cabbages.	Parsnips.	Tomatoes.
Carrots.	Peas.	Turnips.
Cauliflowers.	Potatoes.	Vegetable Marrows.
Celery.	Rhubarb.	

[1] The principal herbs are mint, parsley, sage, and thyme.

[2] The principal salads are endive, lettuces, mustard and cress, and radishes.

The cheapest way of buying a stock of seed is in the form of a "collection." All seedsmen offer collections (the contents of which they often specify) on very low terms. But vegetable seeds are quite cheap nowadays, and they may be ordered separately if desired. It is difficult to advise as to the quantity of each, because so much turns on the amount of ground available, and the size of the family, but the following hints may be useful.

Artichokes are not in great demand, and are often omitted from small gardens, partly because they are not especially esteemed, and partly because they take up a great deal of ground. The Globe artichoke, of which the edible part is the large, firm flower-heads, is raised from seed in the first place, and then further propagated, if desired, by suckers. Half an ounce of seed will be ample. The crop of the Jerusalem artichoke is the root, which has a flavour of its own, and is close and starchless. The majority of people do not care for it. It is propagated by tubers, which seedsmen sell. A peck will plant a fairly long row, as the tubers need not be planted closer than a foot apart.

Asparagus is raised from seed, but those who want to cut within a year must buy roots, and strong ones at that. Asparagus is raised from seed easily enough, but plants will not be ready to cut from for three years at least. Half an ounce of seed will give enough plants to fill several beds. In buying roots (technically termed "crowns") those three years old should be purchased, and planted fifteen inches apart.

Beans are classed in three sections : broad, dwarf French, and scarlet runner. A pint of broad beans will make a row twelve yards long, a pint of dwarf

French rather more—say fifteen yards—a pint of runners twenty-five yards.

An ounce of beetroot seed will sow two rows of fifteen feet each.

Borecole, broccoli, brussels sprouts, savoys, and cabbages are not sown in rows, where the plants are to develop, like beans and beetroot, but in short rows on a spare plot, whence the seedlings are transplanted later on. Half an ounce of seed should produce several hundreds of plants. Dealers generally offer small packets which yield two or three hundred plants each.

An ounce of carrot seed will suffice for four rows, each twenty feet long, and this should be enough for small families, as the roots are not in daily demand, but are used as a change.

Cauliflowers are treated the same as the other green vegetables just mentioned, and consequently the same remarks apply to them.

Celery seed is sown in boxes or pots under glass, and the plants put out afterwards. A seedsman's "packet" will yield many hundreds of plants.

Chicory is sown in spring, and the roots lifted in autumn for forcing. Half an ounce of seed will produce abundance.

It is not often that a large number of cucumber plants are wanted, and a seedsman's packet generally gives plenty. It may only contain twelve seeds, but every one may be expected to germinate, and twelve cucumber plants are enough for most people.

Herbs may be raised from seed, which is sold in packets. Sage is often propagated by cuttings, and mint by root divisions.

Horseradish may be raised from seed at the outset,

but when there is any on the place it is usually propagated by root cuttings.

Leeks are raised from seed, and half an ounce should yield several hundred plants. This crop is often sown like the greens, and transplanted.

Mushrooms are grown from "spawn," which is sold in bricks by the bushel. The bricks are broken up into small portions. A bushel will do a fairly large bed.

An ounce of onion seed should sow ten rows of fifteen to twenty feet long each. If the seed is sown under glass, and the seedlings transplanted, it will do more.

An ounce of parsnip seed will sow four rows, each twenty-five feet long.

A pint of peas will sow three rows, each twenty feet long.

Potatoes are not, as a rule, raised from seed, but from sets, which are planted about two feet by one foot apart in the case of early varieties, and twenty-eight inches by fourteen inches in the case of late varieties; consequently, from a hundred to one hundred and thirty-six sets will be required per square rod. Potato sets are sold by the bushel of about fifty-six pounds, and there are, on an average, twelve sets to the pound.

The remarks made in connection with asparagus apply, in part, to rhubarb. It is raised from seed readily enough, but three years may elapse before the plants are strong enough to be pulled from. Those who want quick produce buy strong roots, and plant them about a yard apart all ways.

Of the salads, endive and lettuces are generally sown in reserve plots (or under glass for early crops) and transplanted. Mustard and cress and radishes are sown where they are to develop. Packets generally suffice

of the two first named; but ounces, or even pints, may be ordered of the others, if constant successions are required.

Salsify and scorzonera are sown where they are to grow, like parsnips and carrots. Half an ounce will suffice for three rows, twelve feet long, of each.

Seakale can be raised from seed, but it takes three years to get strong forcing crowns, and many persons prefer to buy the latter in preference to waiting. Strong, prepared crowns can be forced at once. When a stock of plants has been secured, it can be increased by means of root cuttings.

Shallots are not ready for use until the second year if raised from seed, and consequently they are generally grown from bulbs, which are bought by the pound in spring, and planted twelve inches apart by nine. A pound may contain from twenty to thirty bulbs; the number varies.

Spinach is generally sown as a catch crop between peas, and as it is a useful vegetable, and very cheap, successions may be sown. An ounce of seed will sow twenty-five yards of row.

Tomatoes are raised from seed under glass, and planted out. A packet will yield two or three hundred plants.

Turnips, like spinach, are very cheap, and being a useful "catch" crop between peas and beans, may be sown frequently from February or March to October. An ounce of seed will sow five rows, each ten yards long.

Vegetable marrows are sold in packets of a few seeds; as in the case of cucumbers, every seed may be expected to grow, and only a few plants are required in most cases. The seed is sown under glass, and the plants transplanted.

The quantities suggested in the above remarks are carefully arranged to provide for thin seeding, which is desirable, not only in economising seed, but in giving strong plants. It is quite easy, of course, to use twice as much seed for a given length of row as is specified here, but the vegetable-grower should guard against it.

CHAPTER III

HOW TO GROW THE PRINCIPAL VEGETABLES

WE have gone a long way towards success in the cultivation of vegetables when we have learned how to improve our soil, and how to sow in the proper quantities. These two important matters were touched upon in the previous chapter, and we may now select a few of the principal kinds, and refer to certain details which it is desirable we should know.

ARTICHOKES

The different types of artichoke are entirely dissimilar. The Globe forms a spreading bush, and its large, firm, green or purple flower-heads, of about the size of large lemons, are eaten. They are of delicate and pleasing flavour. The cultivation of Globe artichokes cannot be recommended in small gardens, where space is very valuable, because the yield is small in proportion to the space the plants occupy. They are raised from seed in spring. By pruning in summer, young growths may be induced to push, and when blanched they form a very agreeable dish called chards.

The Jerusalem artichoke has a tuberous root. It crops abundantly, and is a far more economical plant than the Globe, but it is not everybody who likes the

flavour of the close, earthy, starchless tubers, and those who do may not possess digestive organs equal to assimilating them. The plant is easily grown. A row may be planted in any out-of-the-way spot. The soil should be well deepened, but not heavily manured. The tubers may be set a foot apart.

There is a third artichoke—the Chinese—a much smaller plant than the other two, and very distinct in every way. The roots are the edible part, but they are not in the least like the Jerusalem. They are small, cylindrical, and spiral. The flavour is agreeable. It may be grown successfully in deep, cool soil if the tubers are planted nine inches apart in a row in spring.

Asparagus

We have seen that asparagus may be raised from seed, and also that crowns can be purchased. A person who sets out to raise his own asparagus should sow the seed in a drill about the middle of April, and cover it with an inch of soil. By October, when growth will probably cease for the year, the plants will range from a foot to two feet high, and have a nice mass of fibrous roots. In spring they may be set out six inches apart in rows two feet asunder. They will rapidly increase in size, and the following spring—that is, two years from the sowing—they may be planted in the beds. If the plants are very strong, they may be put into the beds at the end of the first year.

Old-time asparagus-growers used to make these beds in a very elaborate way. The fact that the plant dislikes a damp, close subsoil, led them to suppose that it was necessary to build up the bed on a superstructure of drainage material. There is no such necessity, except

in the case of clay soil. Even in stiff land the writer has found that it will suffice if a wide alley about a foot deep is made between each pair of beds, and the soil removed is thrown left and right, so raising the ground level on each side, provided that the land is not water-logged in winter. If the beds are made four feet wide there will be plenty of room for two rows of plants, each about fifteen inches from the outer edges, thus leaving eighteen inches in the centre. The crowns may be eighteen inches apart in the rows, and may be covered four inches deep. Great care must be taken to prevent the fleshy roots from getting dry during the planting. They ought not to be left lying about in the sun for several days before they are put in.

In the autumn, after the growth has died and been removed, the beds may be covered with seaweed, if procurable economically, and if the land is light. In the case of heavy soil, it will be better to mix decayed manure and burnt refuse together and spread them on. In spring the bed may be dressed with salt (except in the case of stiff, wet land) at the rate of a quarter of a pound per square yard, or with nitrate of soda at the rate of one ounce per square yard.

If the plants are two years old at the time of planting, the bed may be cut from in the spring of the following year; if only one year old, in the spring of the second year after planting. No roots under three years old should ever be lifted for forcing, and only then if they are thoroughly strong. Those who force asparagus ought to have fresh supplies of plants always coming on, so that the forced roots can be thrown away when the crop has been taken.

Beans

Broad beans are a toothsome, if somewhat coarse vegetable. They are very hardy, and very easily grown. They like a rich, cool, moist soil, not a shallow, poor, dry one. They may be sown three inches deep, six inches apart, and in rows two feet asunder, in November, and again in February, March, or April. The only trouble with them is to keep down black fly, which fastens on the growing tips when the plants are in flower. The shoots should be pinched off between finger and thumb at once, and thrown away. The spring-sown crop should be ready for gathering in from twelve to fourteen weeks from the time of sowing.

Dwarf French beans are not so hardy, and ought not to be sown before the end of April. Even then a late frost or a spell of cold winds may nip them. They enjoy rich soil. The seeds ought to stand six inches apart in rows two feet asunder, and may be covered with three inches of soil. Pods ought to be ready for gathering inside twelve weeks.

Scarlet runners are much the most useful of all beans, and also the most tender. Very little frost suffices to pinch them. On this account it is not prudent to sow before the end of May, unless the position is a sheltered one, or shelter can be provided on a frosty night. The seeds may be put in three inches deep and nine inches apart. If there is to be a second row, do not let it come within six feet of the first. The plants should have light poles, or strings, for climbing on. Pods should be ready for picking in twelve weeks.

Beetroot

This vegetable must not be put on to freshly manured ground, or it will be earthy. The middle of May is early enough to sow, except in the case of round-rooted sorts, which may go in three weeks earlier. In both cases it is wise to cover two inches deep, and allow a distance apart of twelve inches by nine, the former from row to row, the latter from plant to plant. The seedlings must be netted or threaded to keep off birds, which are very fond of pulling them out. The round sorts should be ready in thirteen or fourteen weeks; the tap-rooted ones will be a few weeks longer; in fact, it is well to leave them in the ground till October, when they may be laid in heaps, and covered with straw and earth.

Broccoli and other Winter Greens

The winter greens are a useful class, in spite of the fact that they are somewhat coarse. They are very hardy, and will give produce from October to June inclusive.

Broccoli.—Good varieties of this vegetable are very little inferior to cauliflowers. One sort may be sown about the middle of April, another at the end of the month, and a third about the middle of May. The seed may be sown half an inch deep in rows a foot apart. The seedlings should be protected from birds, thinned to prevent crowding, and planted out thirty inches apart during showery weather in June. The soil should be made quite firm around them. If they are planted between potatoes, varieties of the latter should be chosen

which come off the ground by mid-August, in order that the broccoli plants may get hardened by exposure, and enabled to withstand the severe weather of winter. They will be ready the following spring.

Borecole.—This may be sown in March or early April, and treated in the same way as broccoli. Gatherings may be made from it in mild spells in late winter and early spring.

Brussels Sprouts.—If sown in March and planted out in June, Brussels sprouts will be ready in autumn, and will maintain a supply into winter.

Savoys may be sown in the same way as the other greens. April or May, with planting out in July or August, will be soon enough, as early savoys have not the flavour of later ones.

Cabbages

A supply of cabbages may be had during the greater part of the year, but is perhaps the most welcome in late winter and early spring. To get this the seed should be sown the first week in August. It should be sown thinly in drills, the plants thinned, and subsequently planted about eighteen inches apart in October. It is wise to plant in firm ground, such as an old onion bed, otherwise the growth is soft and loose. Cabbages may also be sown in March, April, May, and June, if produce is wanted in summer and autumn, but the majority of people do not care for cabbages when they have peas, beans, vegetable marrows, and other summer vegetables. There is an uncommon vegetable of the cabbage tribe called *couve tronchuda*, of which seed is offered by most dealers quite cheaply. The fleshy leaf-ribs are eaten, and have excellent flavour. The seed may be sown in spring,

and the seedlings transplanted. Another little-known vegetable of this class is the rosette colewort, which need not be sown till May, and may be planted a foot apart on any spare piece of ground. If pickling cabbages are wanted, sow in summer, and the plant will stand the winter, and make large, firm hearts the next season.

Carrots

The gardener who has frame accommodation will often raise a few early carrots under glass. There is a variety called Parisian Forcing which is valuable for this purpose. It gives small, very sweet roots about the size of walnuts. Other sowings may be made out of doors in April and May. The drills may be drawn a foot apart and an inch deep, and the plants may be thinned until they will be just clear of each other when full grown. They ought to be ready for lifting by mid-September, and may then be covered with straw and earth. Carrots do not care for a stiff, close, damp soil; and those growers who have clay must break it up well, so as to get it as friable as possible. They must also be careful to sow when it is dry enough to crumble freely, not when it is sodden with rain. It will be an advantage if some wood ashes can be sprinkled in the drills at the time of sowing. It is advisable to press the soil close round the plants after thinning them, in order to keep away the maggot. Avoid manuring.

Cauliflowers

A few small, tender, milk-white cauliflowers are welcome in early summer, but it is only possible to get them by sowing under glass, in heat, in January

or February. The seed may be sown in a box, and when the seedlings are two inches high, by which time they will be getting crowded, they can be set out four inches apart in larger boxes, and hardened in an unheated frame. By the time they have grown sufficiently to come into contact with each other again, the weather will be warm enough for them to be planted in the garden. A piece of deeply-worked, well-manured soil should be prepared for them. Unlike the preceding crop, they love a moist, holding soil. Cauliflowers for autumn use need not have glass protection at any time. They may be sown out of doors in April, like Brussels sprouts and broccoli, and planted in June. They are extremely useful in October and November, when peas and beans are over.

Celery

One of the most delicious and valuable vegetables, celery would certainly be grown even more extensively than it is at the present time if it were not that it involves a considerable amount of trouble. There is not only the sowing under glass, and pricking off, but the making of trenches, and earthing. The seed may be sown in a box in February or March, and placed in a frame on a hotbed, or in a warm greenhouse. When the seedlings are about three inches high, they may be set out into other boxes, and put into an unheated frame to harden. They will be ready for planting out in June, and that is often a convenient time, because a very early crop of peas or potatoes may be ready to be cleared off and make room for them. A trench may be made a foot wide and nine inches deep, the soil which comes out being placed in a neat ridge along the side of the trench,

where it will carry a crop of lettuces to maturity before it is required for earthing the celery. The bottom of the trench should be dug up, and some manure worked in. Showery weather should be chosen for planting if possible; if it is dry the trench must be shaded for a few days, in order to give the young plants a good chance of getting started. When the celery is a foot high, it is wise to put a loop of raphia round it, to keep it together. About six weeks before it is wanted for use (but not later than mid-October in any case, for fear of injury from frost) earth should be piled up as far as the top cluster of leaves, in order to blanch the stems, and make them eatable. If there is a good supply of celery, it will be useful all through the winter, both for eating raw with cheese, and cooked as an ordinary vegetable dish. Celeriac, the turnip-rooted celery, is delicious when cooked, and may be raised like ordinary celery, but does not need trenches.

Cucumbers

If we have a spare frame we may grow cucumbers in it. A hotbed may be made up, by getting fresh stable manure and turning it three or four times at intervals of a few days, in order to drive off the rank steam, and then building it up in a firm mass. The bed may be covered with soil. The seeds can be sown singly in small pots in March, and placed in a warm house, or on a hotbed. Where the plants have formed a couple of rough leaves (the first, or seed leaves, will be smooth ones) the tip may be nipped off to encourage side shoots to form, and the plants put into the frame. They will soon fill it; in fact, they will need a certain amount of curbing to keep them from getting overcrowded.

Very useful cucumbers can be grown without heat. What are called "ridge" varieties should be chosen, and seed sown in a frame early in April. The plants can be planted out of doors two months later. If cucumbers are to be grown in a house, they should be raised in heat like the frame cucumbers, but should not have the tip removed. They should be planted in mounds of soil, and the shoots fastened to wires trained under the roof.

Leeks

More esteemed in North Britain than in the South, leeks nevertheless enjoy a fair amount of popularity in all parts. They are related to the onion, and may be looked upon as a change vegetable. The culture is quite different, however. Instead of being planted in a hard bed on the level like onions, they are planted in manured trenches, and subsequently earthed up, similarly to celery, where very fine produce is sought. Smaller leeks, useful for cooking, can be grown on the level, but they need earthing, and this is more troublesome on the non-trenching than on the trenching system. The seeds may be sown on a reserve plot out of doors early in April, and afterwards planted out; but growers who want particularly fine specimens often sow under glass early in March, and so get stronger plants. Leeks do not need lifting and storing in winter the same as onions, but may remain in the ground, and be used as required, like celery.

Mushrooms

Mushrooms are not vegetables, correctly speaking, but fungi. They may, however, be classed with kitchen-

garden crops for the sake of convenience. They are abundant in the shops in late summer, when the field supplies are available; and it is hardly worth while to grow them then. They may be had at most other periods of the year, even in winter, by cultivating them on hotbeds in the open air. Three months may be allowed from starting to full bearing. The manure should be fresh from the stables, and it must be well sweetened by turning it two or three times at intervals before making the bed. The manure may be built up in the form of a ridge, about six inches wide at the top, thirty inches wide at the bottom, and two and a half feet high. It will be ready for the spawn when the heat has started falling and has dropped to about 80°. The spawn bricks may be broken up into pieces about the size of golf balls, and pressed well within the manure. In a few days white threads should begin to run from them, and when that is observed to be taking place the bed should be covered with soil to the depth of an inch. The soil must be moist, or it will not bind on the sides of the bed. After the spawning has been done, the bed should be covered with straw, a thin coating if it be summer time, a thick one if winter. The object is to maintain warmth in the bed, which might otherwise speedily become cold. Mushrooms may appear through the soil casing in a month's time, or they may not appear for two months. If they do not show in eight weeks the bed may have a soaking of warm water.

A cool, dark, but sweet-smelling outhouse or cellar is a very suitable place for growing mushrooms in.

Onions

A long supply of onions is considered indispensable, in spite of the fact that the vegetable is looked upon with coldness by some on account of its odour. Large, fleshy onions like "Ailsa Craig" are not so strong as the small "Blood Red" and "James's Keeping," and can be grown much larger and finer than the imported Spanish onions by sowing the seed in a box in a greenhouse in January or February, pricking the plants off into deeper boxes when they become crowded, hardening them in an unheated frame, and planting them out eighteen inches apart by twelve in deeply dug, heavily manured, but firm ground at the end of April. They will be ready for harvesting by the end of August, when they should be drawn from the ground and well roasted in the sun. This method involves a little extra trouble, but the latter is well repaid by the heavier and finer crops provided. If the crop is to be grown entirely out of doors, the ground should be well dug and manured in time for the seed to be sown by the end of March. It should be sprinkled thinly in drills nine inches apart, and covered with an inch of soil. After sowing, tread the bed well over in order to make it thoroughly firm, and then very lightly scratch it over with a rake to give a neat and finished appearance. A sowing may be made about the middle of August to give young onions for salads the following spring.

Parsnips

Like carrots and beetroot, parsnips do best in deeply worked but not freshly manured soil. The end of

March is a good time to sow. The rows may be fifteen inches apart, and the plants thinned out to about a foot asunder. They should not be lifted in autumn like the other roots, but left to mature in the ground, being drawn from as needed throughout the winter.

Peas

Almost every person likes green peas, and is glad to have them over as long a period as possible. It is not easy to get them before June out of doors, or after September, but a great deal depends upon circumstances. If the grower can start his peas in pots or boxes under glass in January or February, and plant them on a warm border, he may gather late in May, but it is unusual. Some growers sow out of doors in autumn, in the hope of getting an early crop the following year; but the plan fails more often than it succeeds. As regards the last crop of the year, it is easy to get peas in October if the district is mild and moist, but not if it is cold and dry.

If seed is sown out of doors, a period of from twelve to sixteen weeks may be allowed for the crop to come in. The earlier sowings are apt to be the longest, because when they are made the soil is comparatively cold, and germination is slow. Peas sown from mid-April to mid-May generally come in quickest. The drills may be drawn four or five inches wide and about three inches deep. If several rows are sown together, they should be at least as far apart as the plants grow high. The space between may be sown with spinach or turnips. The peas may be moistened with paraffin oil to keep off vermin, and the young plants must be protected from birds with fish-netting or black thread.

The plants will need staking, and the sticks should be put to them directly they show tendrils, otherwise the plants will not grow rapidly. The sticks must vary in height with the varieties, which differ considerably. The height of the pea is nearly always stated on the packet or in the catalogue.

Peas enjoy a deep, rich soil—in fact, it is difficult to get good crops of them without it in dry, hot weather. The soil should be thoroughly deepened and manured, a few weeks before sowing, if possible. When they come into bearing a good soaking with water, or, better still, liquid manure, twice a week, will be beneficial, helping the plants to crop, and keeping away mildew.

Seeds may be sown from February to May in order to get constant successions over a long period.

Potatoes

The first crop of potatoes out of doors will probably be dug towards the end of June, but a great deal depends on the soil and situation. On a light, warm soil, and on a south border, it may be possible to get a few in May. Those who want home-grown potatoes by May in cold, dry-land districts must grow them in frames or houses. Apart from the question of soil and district, the varieties differ a great deal, some yielding far more quickly than others.

It is a good thing to order planting sets of early potatoes in winter, and lay them two or three deep on a dry floor in a light, frost-proof place. This encourages them to form one or two strong sprouts. The ground may be prepared for the crop by working it deeply, but, as we have seen in our chat on Rotations, it need not have yard manure unless poor. If it has been well

dunged in previous years, a mixture of mineral superphosphate and sulphate of potash, two parts by weight of the former to one part of the latter, spread in the drill at the rate of a handful to the yard, will be adequate. The drills may be drawn three inches deep, two feet apart for early varieties, and two feet four inches for late sorts. The sets of earlies may be put a foot apart, and of lates fourteen inches. After covering them with the late soil from the drill, soil may be drawn over them in a ridge three or four inches high.

If the sets have been sprouted, there will probably be only one or two strong growths, but if several shoots should come through together it will be wise to remove the weakest ones, retaining only two. When they are six inches high they should be earthed by drawing soil quite up to the tips of the leaves. They will keep on growing rapidly, and at the end of another three or four weeks will be ready for the final earthing.

The early ones should be ready for lifting in from twelve to sixteen weeks after planting, the actual time varying with the soil, the situation, and the weather. One can generally get a few tubers by the time the plants begin to bloom, and the whole of the crop will be ready for lifting when the tops turn yellow. Later sorts will probably be from fifteen to twenty weeks in completing their growth. They should be lifted as soon as the foliage ripens, and, after being spread to dry, with a covering over them to preserve them from greening, should be placed in a heap, and covered with straw and soil.

If the crop is attacked by disease before it is ready for lifting, the foliage should be sprayed with Bordeaux mixture (see p. 233). The occurrence is not likely in dry, hot weather, but is extremely probable in wet, cold weather.

Gardeners often grow crops of early potatoes in large pots or frames in winter, and there is no trouble in getting a supply if a warm house, or a heated frame, is available.

Rhubarb

Rhubarb is very welcome in spring, and it is a very easy crop to grow and force. As we have already seen, it is somewhat slow in coming into yield from seed, three years elapsing from the time of sowing before it is strong enough to be pulled from; but it is quite easy to get produce more quickly by purchasing roots, and splitting them up. A strong "stool" of rhubarb will be nine or ten inches across, and may be cut up into several pieces. If portions are taken with two good "crowns" or buds each, and planted in deep, rich, moist soil in spring, they will be ready for pulling from the following year.

Rhubarb likes a strong, cool soil, with plenty of "body" and moisture in it. If the grower cannot provide it with this, but is compelled to plant in light, dry soil, he will be well advised to give good soakings of water and liquid manure whenever he can spare them. He may also spread a coat of manure on the surface of the soil all round them. If flower stems are thrown up, as they probably will be, he should cut them off at once. These attentions will serve, in some measure, to compensate for the unsuitable soil.

Unless very early rhubarb is wanted, it may be forced on the ground where it grows by the simple expedient of covering it with an empty box and heaping stable manure over the latter. But if a very early supply is needed, it will be necessary to take up some strong "stools," and force them under cover, *e.g.* in a

warm frame, shed, or cellar. When the clumps are lifted, a few of the "crowns" should be removed for replanting, and the remainder of the mass left to sustain a good freezing, after which it will start freely in rich, moist soil in any place where a temperature of about 60° can be maintained.

Salsify and Scorzonera

These minor root crops are rarely grown, except in large gardens, but they have an entirely different flavour from beetroot, carrots, or parsnips. Salsify (the "vegetable oyster") has a particularly agreeable and distinct flavour. Both the crops may be grown under the same conditions as carrots—a deep, friable, not recently-manured soil, April sowing in shallow drills fifteen inches apart, thinning, and lifting in October. They are sometimes left in the ground, however, and are safe if the soil is light and warm, and the district mild.

Seakale.

There is no vegetable more delicious than seakale, and it is remarkable that so many owners of small gardens fill up all their space with coarse things like potatoes and greens, which they can buy cheaply, and find no room for seakale, which is a delicacy, and somewhat expensive to buy. It will thrive in any friable, fertile soil, but it will not succeed in stiff, waterlogged soil; nor will it give heavy crops in thin, dry land, in spite of the fact that it grows on the seashore. It is worth while to take special care in preparing the soil for seakale, because the results are so much better than when this matter is neglected. The ground ought to be

broken up two spades deep, and a dressing of decayed manure worked in. Seakale is subject to a fungoid disease, and the writer has observed that it is very bad in poor, thin, light soil. If plants are being raised from seed, it should be sown two inches deep in a drill in spring, and the seedlings set out in rows the following year, but three years will elapse before they can be forced. If, however, root cuttings a few inches long, and as thick as a lead pencil, can be procured, and are planted in rows two feet apart in spring, in good soil, they will form crowns of forcing strength by November of the same year.

These crowns may be taken up for forcing if required, or they may be forced on the ground by taking the soil from between the rows, and heaping it over them to the depth of a foot.

Cinders from the house fires will do quite as well as soil, and after they are done with may be spread on the paths. Another plan of forcing on the ground is to procure large pots, termed seakale pots, to cover the plants, and heap litter over and around them. Roots may be lifted if desired, packed in soil in frames, or in boxes or large pots in warm places, and covered to exclude light. Crowns forced in heat are not worth planting again, but those forced on the ground will give future crops.

Shallots

The shallot (or eschalot) is a very useful vegetable of the onion tribe, and may be made serviceable either for cooking or pickling. It will give a heavy crop in four to five months if planted early (say by mid-February) nine inches by twelve apart, in rich, well-dug soil. Firm, sound bulbs about the size of a tulip are the best for

planting. The ground must be fairly firm without being actually hard. The bulbs will be ready for harvesting by mid-July, when they should be taken up, spread in the sun to ripen, and then stored. The underground or potato onion may be treated in the same way as the shallot. Seed of the shallot is procurable, and there is no difficulty in raising a supply of plants from it, but they will not crop until the following year.

Spinach

A very agreeable and beneficial vegetable. As it can be grown on ground between peas or beans, forming what gardeners call a "catch" crop, it becomes a sort of kitchen-garden supernumerary, but it must not be despised on that account. The great trouble with spinach is its fatal predilection for running to seed. When the plants throw up flower stems, which they do on the slightest provocation, they are useless. Both the round and prickly-seeded varieties are addicted to "bolting," but the variety called Victoria is not nearly as prone to it, and should be preferred on that account. It is not necessary to defer the first sowing of spinach until the peas are put in. It may be sown in February if the ground is dry enough, and successional sowings may be made until September. Spinach likes a rich, moist, friable soil. The plants should be well thinned out while they are quite small. If crowded the plants are more liable to run to seed, and the leaves are not so fine.

Tomatoes

Everybody likes tomatoes nowadays, and grows them if he can for the sake of the superior flavour which

home-grown fruit possesses over the imported produce sold in the shops. The plant is tender, and is liable to become diseased, and to set its fruit badly in cold, wet summers. For this reason those who have a suitable house grow it under glass. However, a fairly good crop is procurable out of doors in most years, and as the cost of seed is very small, it is worth trying. It is advisable to dot a few seeds in a large pot, pan, or box, about the beginning of March, and keep it in a greenhouse or warm frame. It is not safe in an unheated frame, as a sharp frost might kill the seedlings. When the little plants begin to crowd each other they may be set a few inches apart in larger boxes, or put separately in pots, and hardened in an unheated frame, with newspapers spread over them on cold nights. In fine weather they should have full exposure. They will then make steady, sturdy growth, and by the first week in June will be ready for planting in the garden. The soil ought to be well dug, but not manured, unless it is very poor indeed, in which case a light dressing of manure may be dug in, or a mixture of two ounces of superphosphate and one ounce of sulphate of potash may be used per square yard. Strong stakes about four feet long will be required if the plants are to be grown in the open, but where there is wall or fence space available, preferably with a southern, western, or south-eastern aspect, it should be made use of. The plants may be put in about a foot and a half apart, and trained at an angle of 45°.

Simultaneously with the extension of the top growth side shoots will push, but these ought to be pinched off at once, in order to keep the plant to one stem, and this suppression of side growth should continue until the end of the season. The leading shoot may be left

to grow until the top of the support is reached, when it should be stopped by nipping out the tip. Clusters of fruit will form on the main stem. If, when they begin to colour, some of the foliage shades them, the leaves may be removed. If the fruit is not ripe by the middle of September, the plants may be taken up bodily, and hung head downwards in a cool shed, where the fruit will finish off.

Turnips

There are few people who do not appreciate turnips when they are sweet and pulpy, and few who do not detest them when they are hot, stringy, and lumpy. Unfortunately, they are as often the latter as the former, and there is no denying the fact that the turnip is a somewhat unsatisfactory and troublesome vegetable. It is very liable to be upset by the weather, and by its hereditary enemies the flea beetle, the gall weevil, and "fingers and toes." The grower should aim at spring and autumn turnips; if he cannot grow them satisfactorily in summer it is not a very serious matter, because there are plenty of other vegetables available then. He may make a sowing in February if the ground is dry enough, and a situation between pea rows will be suitable, for the crop may be treated as a "catch" one, similarly to spinach. The soil ought to be well pulverised. If it is lumpy, and dries out quickly, the turnips will probably fail. Thin sowing, and subsequent thinning, may be practised, but the plants need not be thinned severely, as they enjoy each other's shade. The ground should be well compressed after sowing to check the flea beetle, and it does the plants no harm to put a roller over them directly they come through.

Further sowings may be made in March, April, May (if the soil is cool and moist), August, September, and October, in order to maintain successions.

Vegetable Marrows

There are two entirely different kinds of vegetable marrows, namely, the bush and the runner. The former has a compact, upright habit, growing as closely as a red-currant bush, and will therefore appeal to people who have only a limited amount of room; moreover, it fruits a little earlier than the runner, and the flavour is equally good. Plant per plant, the running marrow yields far more fruit than the bush, but demands more room. As to which type would yield the most off a given area of ground, *i.e.* if twelve plants of bush and two plants of runner each occupied a square rod of ground, there would probably be very little in it. The advantage might be on the side of the runner, and certainly less seed, and less trouble in raising plants, would be called for. Both types may be sown in a greenhouse or frame in March, or in the open ground at the end of April. They ought not to be planted out until the end of May, except in sheltered, warm places. They love a rich, deep, cool, moist soil; and if that can be provided they will give no trouble from the flowers failing to set, but will bear heavily and continuously.

Salads

Of the vegetables already mentioned, beetroot, cucumbers, onions, and tomatoes are used in saladings, but there are several others. Curled chervil is one. The seeds are sown at intervals from spring to autumn,

in order to secure successions. The leaves of chicory and dandelion are also used, and these too may be sown in spring. Corn salad is very useful, as it can be had in winter by sowing seed in late summer.

Mustard and *cress* (or rape and cress; market growers substitute rape for mustard, on account of the seed being cheaper) are very popular. One may sow in boxes in warm houses in winter and spring, and out of doors in summer in constant succession, and so have an uninterrupted supply. The principal points are: (1) to have the surface soil very fine, so that the salad can be cut quite clean and free from grit; (2) to sow the cress a few days before the mustard, in order to insure both coming in together; (3) to keep the soil moist. In order to secure perfectly clean plants, many people abstain from using soil altogether, and stretch a piece of flannel, with the ends lying in water, on a frame. The flannel will be kept constantly moist by the water which it takes up, and the seeds will germinate readily if the temperature is warm.

Endive comes only second to lettuces, from which it differs in its bitter flavour. It is very hardy, and can be had in winter and spring. The seeds may be sown an inch deep from May to August, and the plants put out a foot apart. The only cultural attention of any importance is blanching, and perhaps the simplest way of effecting this is to tie the plants up, and heap ashes along both sides of the row. Endive likes a light, warm, loamy soil.

Lettuces are indispensable. There are two sections, one tall and narrow ("cos"), the other low and spreading ("cabbage"). Opinions differ as to which is the better, and it is wise to grow one or two varieties of each. Lettuces for early use may be raised in a green-

house or frame, and planted out in spring. It is not safe, as a rule, to sow in the open air before mid-March. To economise space the seed may be sown in drills half an inch deep and a foot apart, in a spare corner of the garden, thinned to keep them sturdy, and transplanted in rows in any convenient place, such as between peas and beans, or on ridges beside celery trenches. They will not need any special attention beyond tying the cos varieties up for blanching purposes when they are about full grown. The great trouble with lettuces, as with spinach, is running to seed. For this reason it is not prudent to grow a large quantity at any given time, because they will not await the convenience of the grower, but if not used at once will "bolt." The best plan is to make sowings every few days, if a constant supply is wanted. It is more trouble, but it is necessary. Sowings may be continued up till the end of August. The plants raised at the last sowing will stand the winter, and come in for an early crop the following year.

Radishes are almost as indispensable as lettuces. If they are wanted late in winter and early in spring, they must be sown under glass. Gardeners who prepare frames for early potatoes and carrots often sow a pinch of radish seed between the rows of these vegetables; the radishes are ready to pull before the potatoes and carrots want all the room. Outdoor sowings may begin in March, and continue all the summer. It is wise to prepare the soil well by digging it deeply and thoroughly pulverising the surface, even though the crop is a surface rooter, because this treatment tends to keep the soil moist—a very important factor in securing tender radishes. Small patches may be sown broadcast in any spare corners, and no transplanting will be called for.

It will be necessary, however, to protect the crop against birds, which will spoil sowing after sowing unless they are kept away by fish netting, or some other means. A last sowing may be made in September for winter produce.

Herbs

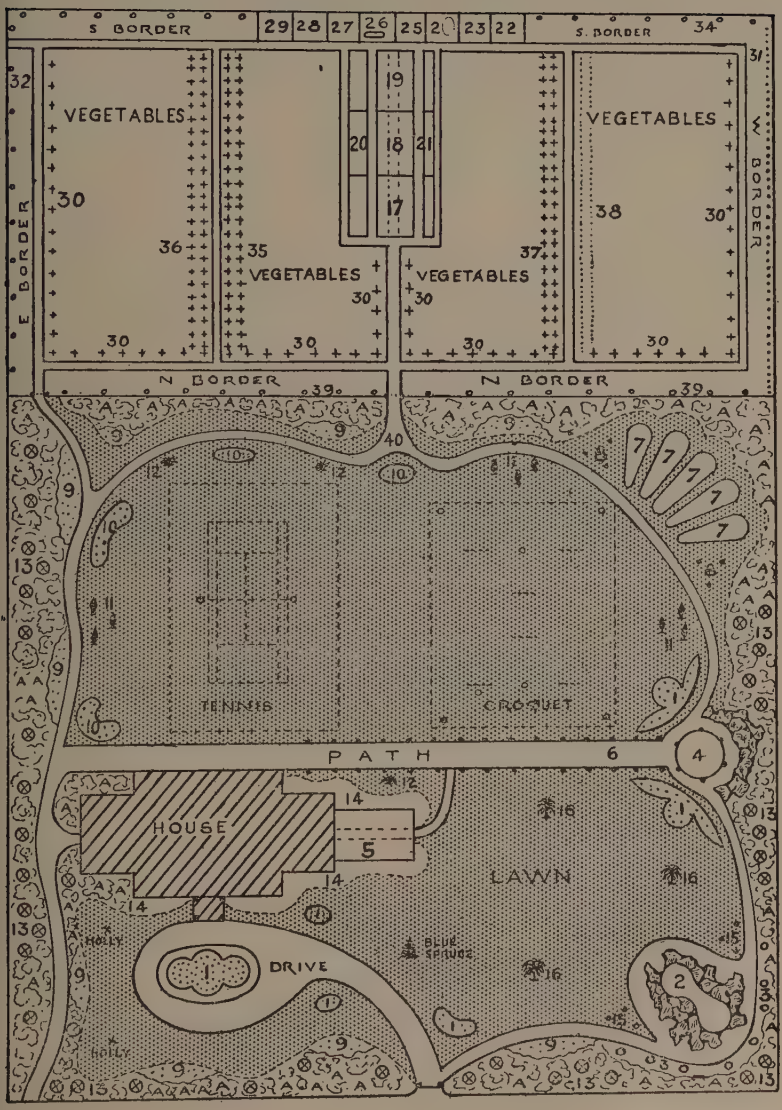
We have seen that a bed of herbs containing mint, parsley, sage, and thyme is almost indispensable in a kitchen garden. To them might be added basil, borage, fennel, hyssop, lavender, marjoram, pennyroyal, purslane, rampion, rosemary, rue, savory, sorrel, and tarragon. These can be got from seedsmen with the supply of kitchen-garden requisites, and sown in the open garden in spring.

PLANS

GROUND PLAN OF COMPLETE GARDEN
(About Four Acres)

Scale, 1 inch equals 90 feet.

References: 1. Flower beds. 2. Pond and Rockery for Alpine plants. 3. Ivies on tree stumps, rock boulders, or trellises. 4. Summer-house, with rock-work at back for Ferns. 5. Conservatory. 6. Rose arches or pergola. 7. Rose beds. 8. Pillar Roses or triangular pergola. 9. Herbaceous plants (patches). 10. Dwarf shrubs, such as Azaleas, Spiræas, Weigelas, Veronicas, Hydrangeas, Fuchsias, &c. 11. Groups of Conifers, such as Golden Cypress, Cryptomeria elegans, Retinospora, &c. 12. Pampas Grass, Yucca, &c. 13. Specimen trees: deciduous—Chestnut, Beech, Birch, Elm, Maple, Oak, Poplar, Willow vars.; evergreen—Pine, Silver Fir, Cedar, Spruce vars., in groups of three at widest parts of belt, filled in with evergreen and deciduous shrubs; *a*, low trees (Thorns, Laburnums, Crabs, &c.), with low evergreen and deciduous shrubs. 14. Special shrubs, such as Hybrid Rhododendrons, Azaleas, Euonymus, Berberis, Genista or Cytisus, Azara, Ligustrum, &c. 15. Bamboos. 16. Weeping trees. 17. Plant house. 18. Peach house. 19. Vinery. 20. Three-quarter span pits (table plants, Cucumbers, Melons). 21. Pits and frames. 22. Open shed. 23. Root house. 24. Mushroom house. 25. Potting shed. 26. Stokery. 27. Coke. 28. Fruit room. 29. Pots, &c. 30. Fruit trees (Apple, Pear, and Plum). 31. Pears (cordons). 32. Cherry, Plum (dwarf trained). 33. Peaches and Nectarines (dwarf trained). 34. Apricots, Cherries, Figs (dwarf trained). 35. Currants (Red and White). 36. Black Currants. 37. Gooseberries. 38. Raspberries. 39. Trellis screen with fruit trees (culinary Cherries, Apples, and Plums). 40. Arches for climbers (Clematis, Lonicera, &c.).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TENNIS
CROQUET
PATH
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HOUSE
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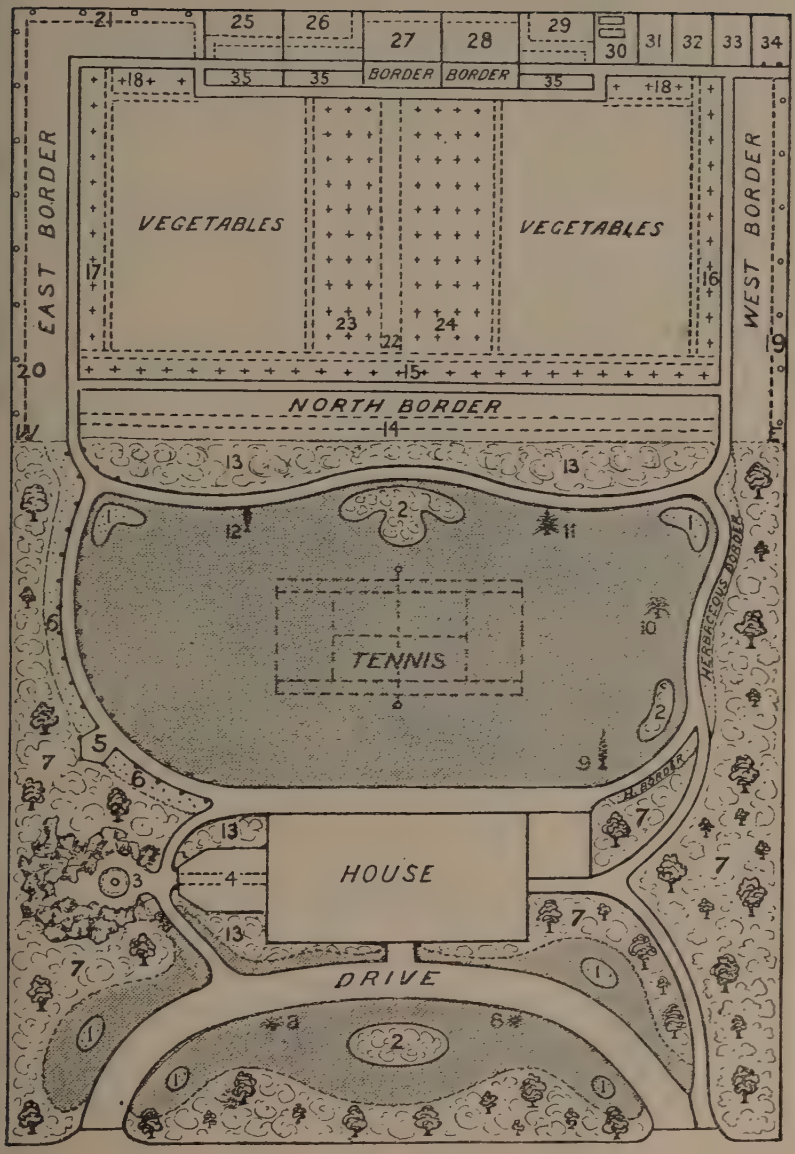
LAWN
DRIVE
BLUE SPRUCE
HOLLY
HOLLY

GROUND PLAN OF COMPLETE GARDEN
(About Two Acres)

Scale, 1 inch equals 60 feet.

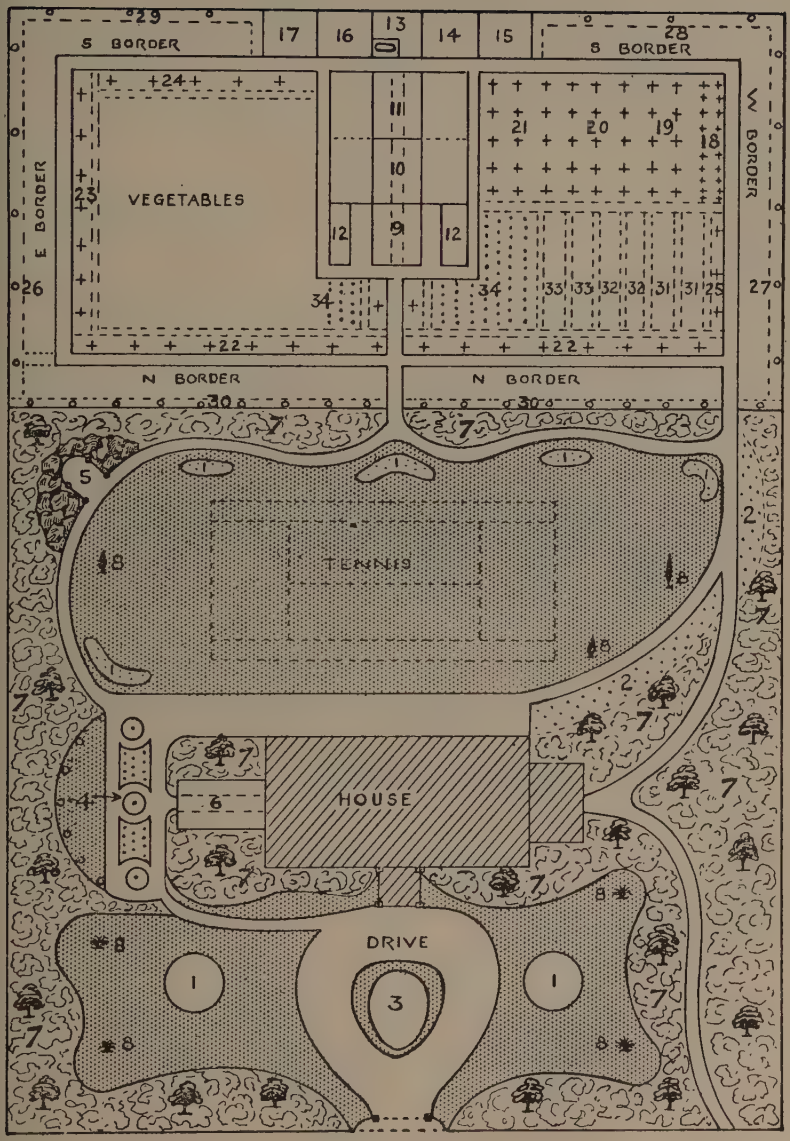
References: 1. Flower beds. 2. Rhododendrons, Azaleas, and other American plants. 3. Fountain with basin for aquatic plants and rockery surrounding. 4. Conservatory. 5. Summer-house. 6. Rose border, with Rose pergola (arches) or pillars, indicated by dots. 7. Specimen trees (indicated by larger symbols), with standard low trees (indicated by smaller symbols), such as Double Thorns, Laburnum, Crabs, Double Cherry, &c., filled in with shrubs. 8. Yucca recurva or Pampas Grass. 9. Lawson's Cypress. 10. Weeping Elm. 11. Abies (Picea) nobilis glauca. 12. Thuya Lobbi superba. 13. Specimen Hollies (green and variegated), filled in with evergreen shrubs, preferably on low bank. 14. Fruit trees (Apples, Cherries, Pears, and Plums as cordons), espalier, 6 feet high. 15. Apple trees (bushes or pyramids). 16. Pears (bushes or pyramids). 17. Plums (bushes or pyramids). 18. Cherries (bushes or pyramids). 19. Pears (dwarf trained). 20. Plums and Cherries (dwarf trained). 21. Peaches, Nectarines, Apricots, Figs (dwarf trained). 22. Raspberries. 23. Currants. 24. Gooseberries. 25. Carnation house. 26. Greenhouse. 27. Peach house. 28. Vinery. 29. Stove. 30. Stokery. 31. Potting shed. 32. Tool house. 33. Mushroom house. 34. Fruit room. 35. Pits.


EAST BORDER
WEST BORDER
NORTH BORDER
VEGETABLES
VEGETABLES
BORDER
BORDER
TENNIS
HERBACEOUS BORDER
HERBACEOUS
HOUSE
DRIVE

GROUND PLAN OF COMPLETE GARDEN
(About One Acre)

Scale, 1 inch equals 40 feet.

References: 1. Flower beds, some with Ericas, Weigelas, Spiræas, and other dwarf shrubs. 2. Herbaceous borders. 3. Rhododendrons. 4. Rosery, with pillars or arches. 5. Summer-house, with rockwork surrounding. 6. Conservatory. 7. Specimen trees filled in with shrubs. 8. Small specimen trees or plants such as Pampas Grass, Yuccas, &c. 9. Plant house. 10. Peach house. 11. Vinery. 12. Pits or frames. 13. Stokery. 14. Potting shed. 15. Tool house. 16. Mushroom house. 17. Fruit room. 18. Raspberries. 19. Black Currants. 20. Red and White Currants. 21. Gooseberries. 22. Apple trees. 23. Pear trees. 24. Plum trees. 25. Cherry trees. 26. Plum trees, dwarf trained. 27. Pear trees, dwarf trained. 28. Apricot, Cherry, and Fig, dwarf trained. 29. Peach and Nectarine trees, dwarf trained. 30. Dividing screen, may be arches with Clematis, Climbing Roses, &c., or fruit trees trained as cordons say, Apples, Pears, and Plums. 31. Asparagus. 32. Seakale. 33. Rhubarb. 34. Strawberries.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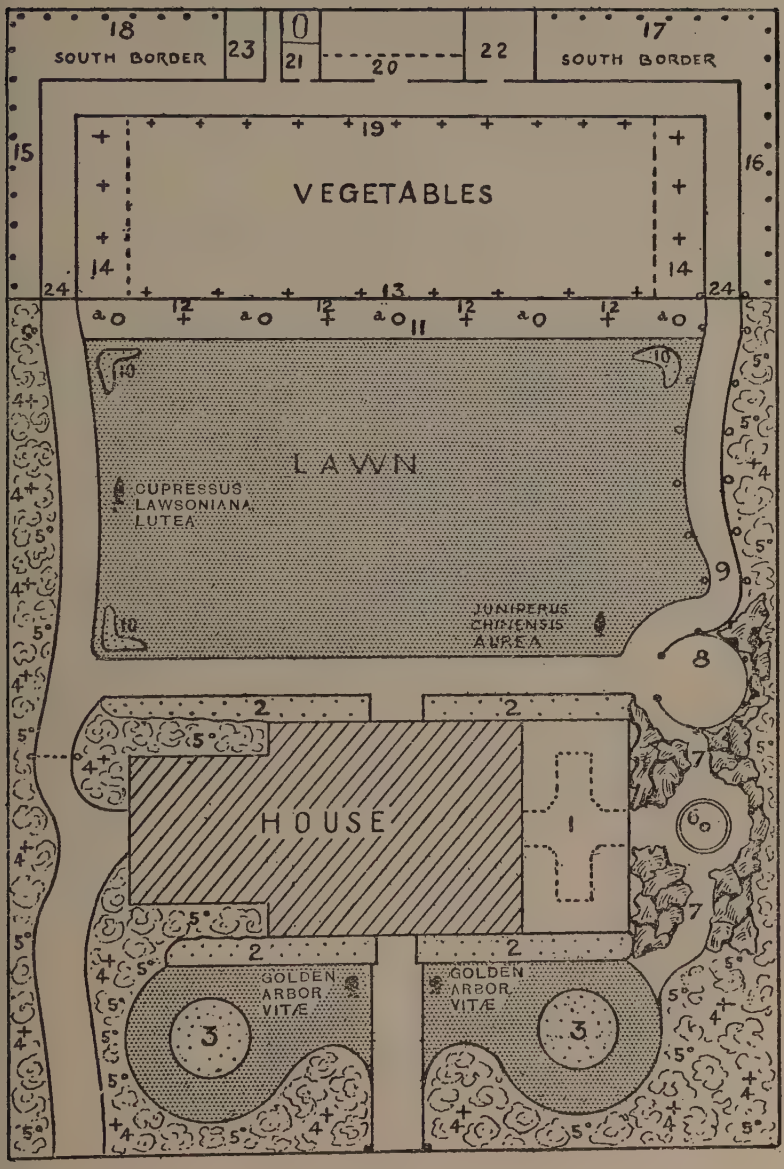
VEGETABLES
TENNIS
HOUSE
DRIVE

GROUND PLAN OF QUARTER ACRE SUBURBAN COMPLETE GARDEN.

Scale, 1 inch equals 24 feet.

References: 1. Conservatory. 2. Flower borders and for wall creepers. 3. Flower beds, with small specimen Cupressus Lawsoniana erecta viridis or Standard Weeping Rose. 4. Standard Thorns, Laburnum, Mountain Ash, Prunus Pissardi, Almond, Cherry, and Crab. 5. Specimen Cupressus, Thuja, Retinospora, Hollies, filled in with deciduous and evergreen shrubs. 6. Fountain with water basin. 7. Rockwork for rock plants and Ferns (according to shade). 8. Summer-house, embowered with Clematis. 9. Rose arches (pergola) or pillars. 10. Rose or Carnation beds. 11. Herbaceous border. 12. Standard Acer Negundo variegatum and A. japonicum aureum, with pillars or poles (*a*) clothed with Clematis, Lonicera, &c. 13. Trellis screen with fruit trees (upright trained). 14. Pyramid Apples. 15. Cordon Currants. 16. Cordon Gooseberries. 17. Cordon Pears. 18. Cordon Cherry, Plum, Peach, Apricot, Nectarine trees. 19. Horizontal trained (cordon) Apples. 20. Plant house with Grape Vine. 21. Stokery. 22. Potting shed, &c. 23. Pit or frame. 24. *Arches:* Parsley-leaved Bramble or Blackberry and Loganberry.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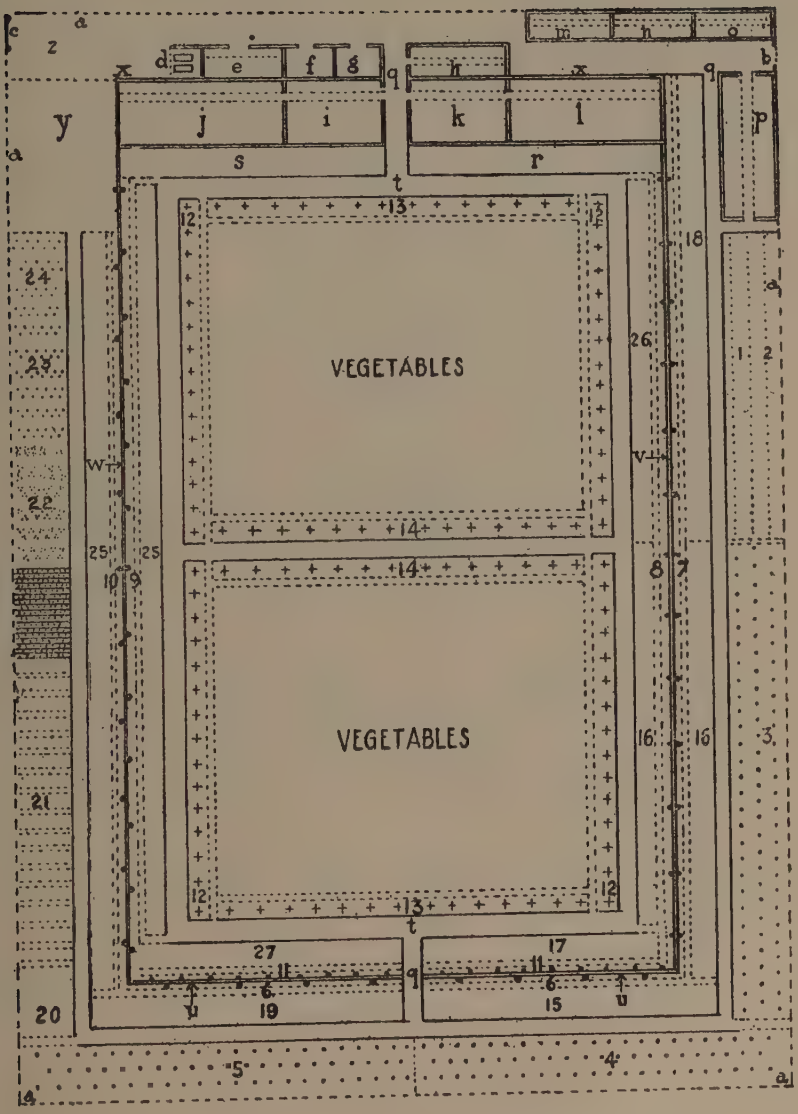
LAWSONIANA
LUTEA
JUNIPERUS
CHINENSIS
AUREA
HOUSE
GOLDEN
ARBOR
VITÆ
GOLDEN
ARBOR
VITÆ

KITCHEN GARDEN WITH GLASS AND FRUIT
(About Two Acres)

Ground Plan—Scale, 1 inch equals 60 feet.

References: *a*, boundary fence; *b*, private entrance; *c*, yard entrance; *d*, stokery; *e*, mushroom house; *f*, tool house and storeroom; *g*, potting shed; *h*, fruit room; *i*, early vinery; *j*, late vinery; *k*, early peach house; *l*, succession peachery; *m*, strawberry forcing house (melons or cucumbers or tomatoes succeeding); *n*, cucumber and melon house; *o*, tomato house; *p*, orchard house (peaches, nectarines, and figs in pots); *q*, entrances (doorways); *r*, peacheries, outside borders; *s*, vineries, outside borders; *t*, paths (preferably asphalted, stone or broad base tile-edged); *u*, south wall; *v*, east wall; *w*, west wall; *x*, north wall (forming back of peach houses and vineries not over 10 feet high, therefore structure three-quarter span roof, also the cucumber and melon and tomato houses), all the walls 10 feet high; *y*, frame ground; *z*, yard.

Arrangement of Fruit Trees and Bushes: 1. Raspberries. 2. Blackberry (Parsley-leaved) and Loganberry. 3. Gooseberries. 4. Red and White Currants. 5. Black Currants. 6. South aspect of south wall—Apricots one side of doorway, and early Cherries and Plums the other side, or Peaches and Nectarines, 20 feet apart. 7. East aspect of east wall—Cherries and Plums, fan trained, 20 feet apart. 8. West aspect of east wall—Pears and Plums, fan trained, 20 feet apart. 9. East aspect of west wall—half-length, early Cherries and Plums; other half, Peaches and Nectarines in southern and warm part of the country, otherwise, choice Apples, dwarf trained, 20 feet apart. 10. West aspect of west wall—Pears, fan trained or horizontal trained, 24 feet apart; or, if gridiron fashion, desirable where variety is desired, 6 feet apart. 11. North aspect of south wall—one side of doorway, Morello and other late Cherries; other side, Red and White Currants or Gooseberries, 6 feet apart, or both sides of doorway may be used for these as shown. 12. Bush or pyramid Apples. 13. Pyramid Pears. 14. Pyramid Plums and Damsons. 15. South border—early Strawberries. 16. Strawberries, east and west aspects. 17. Late Strawberries and Alpine Strawberries. 18. Herbs. 19. Early Vegetables (Peas, Potatoes), &c. 20. Horse-radish. 21. Asparagus. 22. Seakale. 23. Rhubarb. 24. Globe Artichoke. 25. Vegetables and salading required in successional supply. 26. Seed-beds, &c., and vegetables. 27. Late vegetables not succeeding in hot situations.


VEGETABLES
VEGETABLES

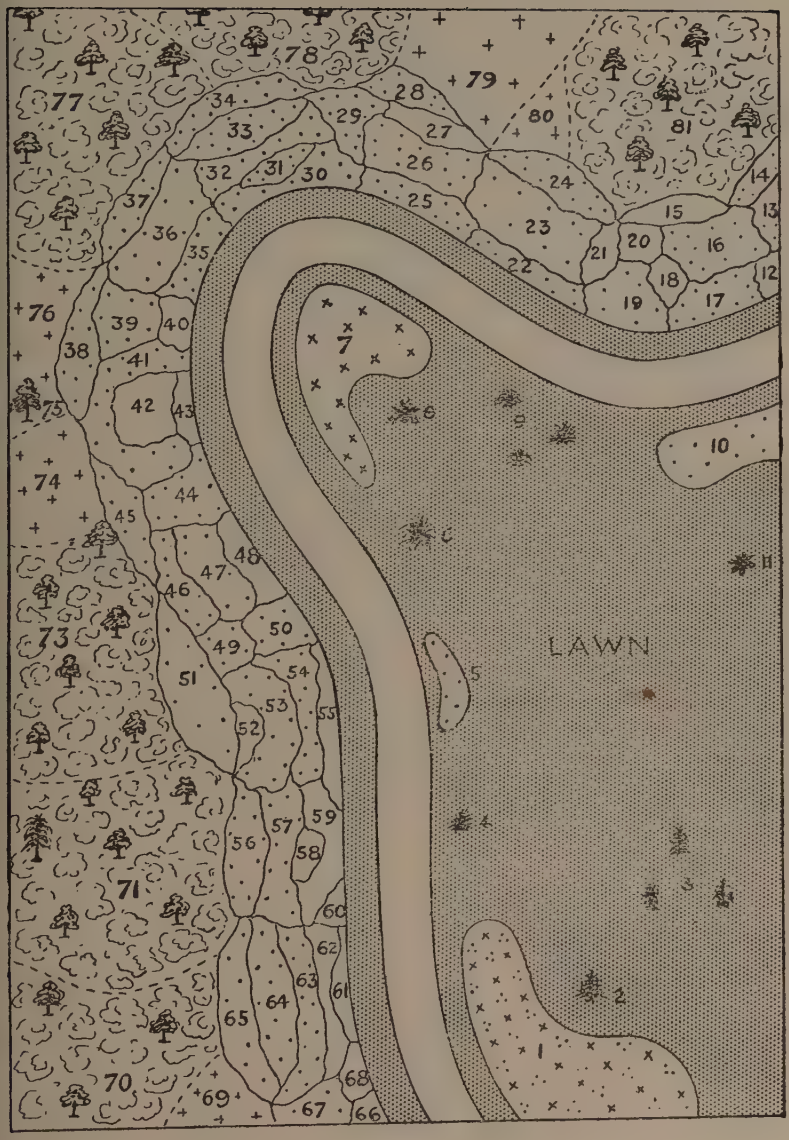
HERBACEOUS BORDER, ETC., ON OUTSKIRTS OF LAWN WITH BACKGROUND OF FLOWERING TREES AND SHRUBS

Scale, 1 inch equals 16 feet.

References.—*Lawn Part:* 1. Azaleas, with Liliums between. 2. Larix Kæmpferi or Juniperus virginiana Schottii. 3. Bamboos (Phyllostachys nigra). 4. Phormium tenax. 5. Torch Lilies (Kniphofias) or Hydrangeas. 6. Yucca recurvifolia. 7. Rhododendrons, bordered with Heaths. 8. Aralia spinosa. 9. Pampas Grass. 10. Tritonias and Tigridias. 11. Crambe cordifolia.

Herbaceous Border: 12. Viola A. J. Rowberry. 13. Aconitum Napellus. 14. Rudbeckia laciniata fl. pl. 15. Rheum palmatum. 16. Trollius. 17. Ranunculus aconitifolius fl. pl.; R. acris fl. pl. 18. Dicentra eximia. 19. Pyrethrums, with edging of Alyssum saxatile. 20. Lunaria biennis. 21. Dielytra spectabilis. 22. Ajuga Brockbanki. 23. Eryngium alpinum, E. amethystinum, E. Olivierianum. 24. Epilobium augustifolium. 25. Potentilla nepalensis. 26. Lythrum roseum superbum. 27. Spiræa aruncus. 28. Phloxes. 29. Achillea Ptarmica the Pearl. 30. Linum flavum. 31. Campanula pyramidalis alba. 32. Campanula pyramidalis. 33. Phalaris arundinaria. 34. Delphiniums. 35. Epimedium pinnatum. 36. Eryngium speciosum superbum. 37. Verbascum olympicum. 38. Hollyhocks. 39. Agrostemma coronaria atrosanguinea. 40. Carex riparia variegata. 41. Gypsophila paniculata. 42. Lobelia, Queen Victoria. 43. Funkia ovata aurea. 44. Gaillardias, with Eulalia japonica zebrina near the edge. 45. Onopordon tauricum. 46. Helenium. 47. Inula glandulosa. 48. Heuchera sanguinea grandiflora. 49. Hemerocallis Middendorfiana. 50. Hyacinthus candicans. 51. Pæonies. 52. Aquilegias. 53. German Iris. 54. Iris, English. 55. Oxalis floribunda. 56. Aster (Michaelmas Daisies), blues. 57. Aster, whites. 58. Chrysanthemum, yellow. 59. Chrysanthemum, red. 60. Molinia cærulea variegata. 61. Pulmonaria saccharata. 62. Campanula van Houttei. 63. Cineraria maritima. 64. Salvia patens. 65. Eremurus robustus Elwesianus or E. himalaicus. 66. Monarda didyma. 67. Papaver orientale. 68. Polemonium cæruleum variegatum.

Trees and Shrubs: 69. Kerria japonica. 70. Laburnum, with a groundwork of Aucubas. 71. Thorns with box. 72. Birch (Silver Weeping). 73. Pyrus floribunda, with Berberis Aquifolium. 74. Deutzias and Spiræas. 75. Mountain Ash. 76. Cydonia, Cytisus, and Ribes. 77. Cerasus (Cherries), groundwork, Portugal Laurels. 78. Acacia (Robinia), groundwork, dwarf Acer palmatum. 79. Syringa, Philadelphus, and Viburnum. 80. Weigelas. 81. Amygdalus (Almond), with groundwork of Laurestinus.


LAWN

HERBACEOUS DOUBLE-BORDERS ARRANGED AS TO COLOUR

Scale, 1 inch equals 16 feet.

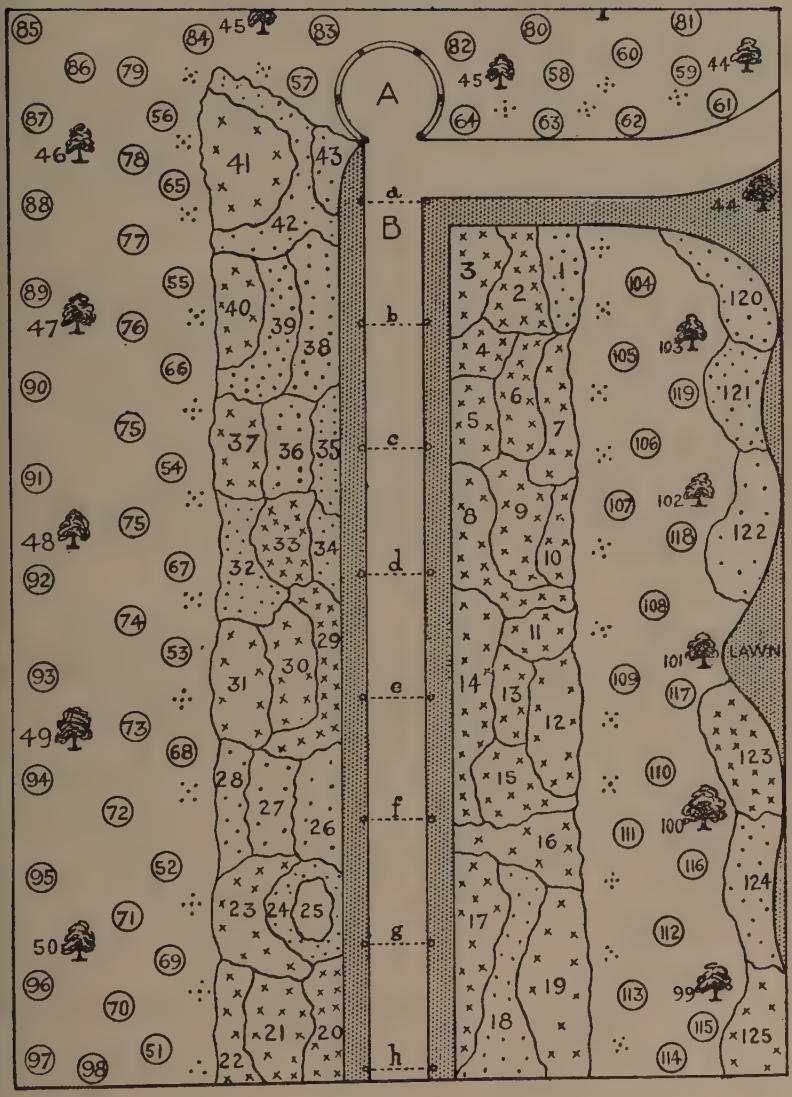
A, summer-house, embowered with Clematis and Virginian Creepers.

B, path with arches clothed with: *a*, Jasminum primulinum; *b*, Rose (climbing polyantha), Leuchstern; *c*, Lonicera (flexuosa); *d*, Clematis Jackmanii; *e*, Jasminum officinale; *f*, Rose (Crimson Rambler); *g*, Clematis Jackmanii alba (white); *h*, Rose (Carmine Pillar).

Herbaceous Borders: 1. Mauve—Galega orientalis or Clematis. 2. Orange—Hemerocallis aurantiaca or Inula Royleana. 3. Sulphur yellow—Viola Ardwell Gem. 4. Sky blue—Linum narbonense. 5. White—Antirrhinum White Bedder or Arabis albida fl. pl. 6. Scarlet—Geum coccineum fl. pl. 7. Pale yellow—Gaillardia Coronation. 8. Soft blue—Aster acris nana. 9. Creamy white—Chrysanthemum Ralph Curtis. 10. Salmon pink—Chrysanthemum Sam Barlow. 11. Golden yellow—Helenium pumilum magnificum. 12. Carmine—Gaillardia Iona or Gazelle. 13. Rose—Geranium Endressi or Incarvillea Delavayi. 14. Blush pink—Viola Blushing Bride. 15. Clear yellow—Hemerocallis flava. 16. White—Galtonia candicans, carpeted with Gypsophila. 17. Lilac mauve—Phlox divaricata. 18. Greyish white—Santolina incana. 19. Bluish purple—Lupinus polyphyllus Purple King. 20. Creamy yellow—Dactylis glomerata aurea. 21. Orange—Erigeron aurantiacus or Glaucium tricolor. 22. Violet purple—Dracocephalum speciosum. 23. Light yellow—Œnothera biennis Lamarckiana. 24. Chestnut—Pansy Eros. 25. Rich yellow—Viola Kingcup. 26. Pink—Statice graminifolia or S. incana. 27. Blue—Salvia patens. 28. Golden yellow—Helianthus grandiflorus. 29. Light blue—Campanula pusilla or C. pumila. 30. Rose pink—Æthionema grandiflora. 31. Yellow and carmine—Cytisus Andreanus. 32. Pale yellow—Thalictrum augustifolium or T. elatum. 33. Silvery—Phalaris arundinacea variegata. 34. Pale yellow—Thalictrum minus affine. 35. White—Prunella grandiflora alba. 36. Scarlet—Delphinium cardinale. 37. White—Campanula pyramidalis alba. 38. Lavender blue—Aubrietia deltoidea. 39. Sulphur yellow—Auricula sulphurea. 40. Blue—Iris germanica cærulea or Aquilegia glandulosa. 41. Metallic blue—Eryngium amethystinum. 42. Silvery—Molinia cærulea variegata. 43. Bright blue—Ajuga Brockbanki.

Shrubbery Border—Trees: 44. Ailantus glandulosa, natural arch. 45. Weeping Birch. 46. Prunus Pissardi. 47. Prunus Amygdalus. 48. Double Cherry. 49. Pyrus floribunda. 50. Laburnum alpinum. Shrubs: 51. Phillyrea medioleæfolia. 52. Veronica Traversii. 53. Osmanthus illicifolius. 54. Ligustrum japonicum. 55. Holly, Waterer's gold-striped. 56. Garrya elliptica. 57. Escallonia macrantha. 58. Cotoneaster Simonsii. 59. Phillyrea augustifolia. 60. Holly, silver. 61. Berberis dulcis nana. 62. Laurestinus. 63. Eurya latifolia variegata. 64. Choisya ternata. 65. Olearia Haastii. 66. Berberis Jamiesonii. 67. Genista albus durus. 68. Berberis Darwinii. 69. Cotoneaster angustifolia. 70. Ribes sanguineum fl. pl. 71. Ribes Beatoni. 72. Cydonia japonica. 73. Cornus Mas aurea elegantissima. 74. Forsythia viridissima. 75. Syringa persica. 76. Philadelphus coronarius. 77. Weigela rosea. 78. Viburnum Opulus sterile. 79. Spanish Broom. 80. Thorn, double Scarlet (standard). 81. Aucuba japonica. 82. Handsworth broad-leaved Box. 83. Berberis dulcis. 84. Portugal Laurel. 85. Ilex Aquifolium fructu-lutea. 86. Aucuba japonica vera. 87. Ilex Aquifolium elegantissima stricta. 88. Portugal Laurel. 89. Colchican Laurel. 90. Ligustrum ovalifolium aureum elegantissimum. 91. Portugal Laurel, round-leaved. 92. Berberis Aquifolium. 93. Buxus latifolia nova. 94. Aucuba longifolia variegata. 95. Holly, Handsworthiensis. 96. Ruscus racemosus. 97. Phillyrea latifolia. 98. Ribes aureum.

Border next Lawn—Trees: 99. Viburnum tomentosum plicatum. 100. Weigela Eva Rathke. 101. Sophora japonica pendula. 102. Prunus sinensis rosea fl. pl. 103. Amelanchier canadensis. Shrubs: 104. Berberis stenophylla. 105. Cornus florida rubra. 106. Lonicera fragrantissima. 107. Cydonia Maulei. 108. Kerria laciniata. 109. Leycesteria formosa. 110. Ceanothus Gloire de Versailles. 111. Deutzia crenata candidissima. 112. Syringa aurea elegantissima. 113. Staphylea colchica. 114. Liquidamber styraciflua. 115. Althæa Frutex. 116. Double Gorse. 117. Weigela rosea nana variegata. 118. Hydrangea arborescens grandiflora alba. 119. Fuchsia Riccartoni. Clumps: 120. Herbaceous Pæonies. 121. German Iris. 122. Japanese Pæonies. 123. Japanese Iris. 124. Everlasting Pea. 125. Torch Lilies. Five dots indicate Liliums, &c.


A
B
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LAWN

HERBACEOUS BORDER AT CORNER ON OUTSKIRTS OF LAWN, SHOWING SYSTEM OF ARRANGEMENT OF PATCHES OF TALL AMONGST DWARF PLANTS

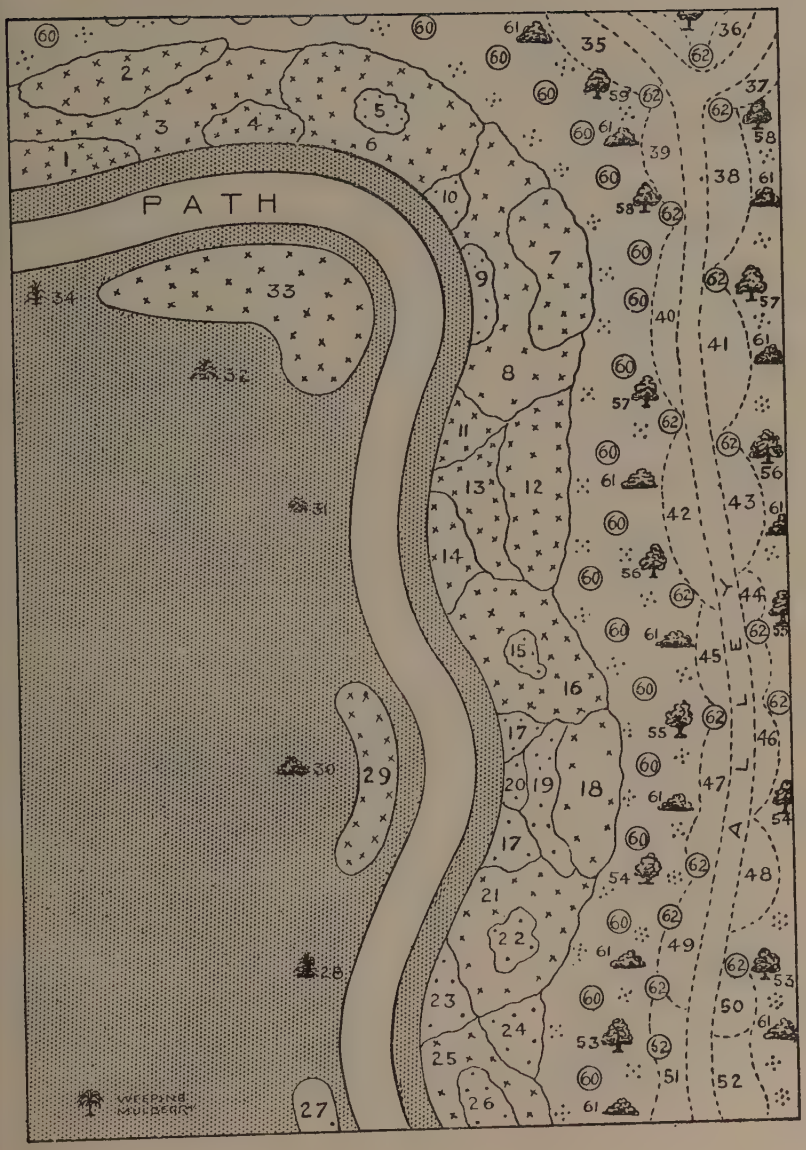
Scale, 1 inch equals 16 feet.

Border: 1. Iris pallida variegata, carpeted with blue Viola. 2. Helianthus orgyalis. 3. Geranium sanguineum. 4. Hemerocallis Kwanso fl. pl. 5. Eulalia japonica zebrina. 6. Heucheras. 7. Hollyhocks. 8. Gaillardias. 9. Prunella Webbiana. 10. Statice altaica or S. latifolia. 11. Sedum spectabile. 12. Phlox Le Mahdi (blue). 13. Phalaris arundinacea variegata. 14. Potentilla nepalensis. 15. Eulalia japonica variegata. 16. Inula glandulosa. 17. Monarda didyma. 18. Bocconia cordata. 19. Anemone japonica. 20. Kniphofia Pfitzeri or Triumph. 21. Anchusa italica, Dropmore variety. 22. Cimicifuga cordifolia. 23. Buphthalmum salicifolium. 24. Buphthalmum speciosum. 25. Funkia Sieboldiana major. 26. Lupinus polyphyllus Foxi.

On Lawn: 27. Erica striata, edged with E. carnea or E. mediterranea nana. 28. Ferula gigantea or F. Tingitana. 29. Rhododendron Catawbiense or R. ramosum varieties, edged with Festuca glauca. 30. Ginkgo biloba or Berberis nepalensis. 31. Pampas Grass. 32. Dimorphanthus mandschuricus (Aralia chinensis), gold or silver variety. 33. Azalea amœna varieties. 34. Arundo conspicua.

Shrubbery Border: 35. Alliums. 36. Scilla (late flowering), such as S. campanulata. 37. Lily of the Valley. 38. Anemones (Alderborough), A. fulgens, and A. stellata. 39. Fritillarias. 40. Dog's-tooth Violets. 41. Lenten Roses. 42. Muscari (Grape, Feather, Musk, and Starch Hyacinths). 43. Primroses. 44. Trilliums. 45. Anemone, St. Brigid. 46. Hepaticas. 47. Anemone apennina and A. nemorosa vars. 48. Chionodoxa and Scilla sibirica. 49. Snowdrops. 50. Winter Aconite. 51. Christmas Roses. 52. Hardy Cyclamen. The dots represent groups of Daffodils in fives; Meadow Saffron (Colchicums), interspersed in sevens.

Trees: 53. Snowy Mespilus (Amelanchier) and Prunus Pissardii. 54. Almond (common and Double Sweet). 55. Laburnum (Golden and Purple flowering). 56. Pyrus floribunda and P. baccata. 57. Cherry (Double-blossomed and Cerasus hortensis rosea). 58. Thorn (double scarlet and double pink). 59. Acacia (Robinia inermis and R. Bessoniana). 60. Evergreen flowering shrubs, such as Aucubas (male and female), Berberis Darwini, Brooms, Laurestinus, Olearia, Garrya elliptica. 61. Deciduous flowering shrubs, such as Dogwood (Cornus), Forsythia, Hydrangea, Syringa, Ribes, Philadelphus, Spiræa. 62. Dwarf shrubs, such as Butcher's Broom (Ruscus), Daphne Laureola, D. Mezereum, D. pontica and Hypericums.


PATH
WEEPING MULBERRY

SIMPLE ROCKERY—GROUND PLAN AND SECTION

Scale, 1 inch equals 24 feet.

Section: *a*, rock with thin edge, so that overhanging plant may be planted on its edge; *b*, an inch or two, or several inches space, with plenty of soil for plant to root in; *c*, patches of soil for dwarf carpeting plants; *d*, limited space for plants with small requirements as to soil and position; *e*, paths, formed of slabs of rock or cement concrete; *f*, wide patches of soil for carpeting or other plants; *g*, position for plants that require an elevated one and restricted to soil room; *h*, background for larger plants.

Ground Plan References—Plants: 1. Primula cortusoides alba magnifica, edged with P. c. Vivid. 2. P. c. Beauty of Sale, edged with P. c. grandiflora. 3. Lithospermum prostratum with Achillea tomentosa bordering. 4. Æthionema grandiflora, Æ. cordifolium, and Æ. Kotschyanus. 5. Acæna myriophylla. 6. Aubrietia deltoidea, A. d. Campbelli, A. d. Dr. Mules, A. d. Hendersoni, any or all five, with Sisyrinchium grandiflorum dotted at back next front rock. 7. Phlox subulata G. F. Wilson with P. s. nivalis on margin. 8. Helianthemum vars. 9. Muehlenbeckia axillaris. 10. Genista pilosa, G. procumbena, G. triquetra. 11. Oxalis floribunda rosea, O. f. alba. 12. Saxifraga Burseriana major, S. Boydi alba, S. Camposi, S. Stansfieldi, in patches, with, on margining rock—miniature hillocks supported with rock—S. sancta, S. Rhaei superba, S. oppositifolia splendens. 13. Iberis Gibraltarica superba, I. sempervivens fl. pl., I. s. superba, I. s. Little Gem. 14. Hypericum reptans, with patches of Yucca filamentosa. 15. Gaultheria procumbens, Galax aphylla. 16. Sedum Heldreichi, G. montanum. 17. Arenaria balearica on damp rocks, Ramondia pyrenaica between the rock, and Arenaria graminifolia or A. montana as carpeting between. 18. Cytisus schipkaensis. 19. Gypsophila cerastioides or G. repens. 20. Sedum glaucum, S. album, S. lydium, S. stoloniferum, &c., in patches. 21. Sempervivum Reginæ Amaliæ, S. calcaratum, S. arachnoideum, S. Moggridgei, &c., with Cyclamen on border in dots. 22. Silene Schafta and Saponaria ocymoides splendens. 23. Geranium sanguineum, with G. s. album on each side. 24. Kniphofia caulescens, carpeted with Nepeta Glecoma variegata. 25. Alyssum saxatile compactum, A. s. fl. pl., A. gemonense sulphureum. 26. Arabis albida grandiflora, A. a. fl. pl. 27. Œnothera cæspitosa, Œ. linearis, Œ. macrocarpa. 28. Primula denticulata, P. Cashmeriana or Alpine Auriculas. 29. Veronica cupressoides, V. epacridea, V. salicornioides. 30. Saxifraga longifolia and S. pyramidalis dotted amongst Thymus lanuginosa, T. Montana, T. serpyllum coccineus. 31. Potentilla nepaulensis or Epimedium luteum, E. macranthum. 32. Phlox subulata Model, P. s. grandiflora. 33. Erica Mediterranea, E. M. verna, E. carnea. 34. Gentiana acaulis, G. verna. 35. Omphalodes verna, O. v. alba. 36. Campanula muralis or Hepatica in vars. 37. Lotus corniculatus fl. pl. 38. Nierembergia rivularis. 39. Euphorbia Myrsinites or Fuchsia procumbens. 40. Cheiranthus Allioni (central part of rock), C. Harpur Crewe (between rock).

PATH
LINE of SECTION
PATH
GRASS
SECTION
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ROCK GARDEN—GROUND PLAN AND SECTION

Scale, 1 inch equals 45 feet.

Ground Plan: a, head of stream; *b*, cascade; *c*, stepping-stones (forming path at points); *d*, pond; *e*, dropping well; *f*, grotto; *g*, steps (rough stone slabs); *h*, boulders in stream that may be used as stepping-stones; *i*, paths; *j*, grass, interspersed with Daffodils, Colchicum, Harebells, &c.; *k*, background of Alders and Birches, overhanging waterfall and rock at that part; *l*, hillside shrubs; *m*, dwarf Conifers; *n*, water-side and bog plants.

Section: o, outside connecting rockery, but not overhanging alpines, sub-alpine trees, and pigmy Conifers; *p*, edging rock for Sempervivums, Sedums, Saxifragas, &c.; *q*, raised paths with steps from lower levels, rising 10 to 20 feet or as desired, formed of rough stone slabs or cement concrete; *r*, large patches of one species or several of a genus; *s*, site plants that like to grow between rocks; *t*, position for plants to hang from face of rock; *u*, shallow-rooted plant positions by water; *v*, shallow water, about 1 foot, fed from waterfall, stream if desired taken under paths instead of stepping-stones; *w*, place for Yuccas, Aloes, Agaves, dotted at intervals with carpeting plants between.

Plants: 1. Groundwork of Eranthis cilicica, dotted in patches with Crocus vars., Galanthus, Colchicums, and Dodecatheons in var. 2. Cyclamen coum vars., C. ibericum vars., C. repandum, C. neapolitanum, dotted with Leucojum vernum, L. v. carpathicum, L. æstivum. 3. Iberis corræfolia, I. Little Gem, I. sempervirens superba, I. s. fl. pl., dotted with Aubrietia Campbelli, A. Hendersoni, A. Bougainvillea, and A. purpurea. 4. Erythronium in var., dotted with patches of Allium cyaneum, A. luteum, A. neapolitanum, A. Moly, A. ostrowskianum, and A. pedemontanum. 5. Chionodoxa vars. in patches, carpeted with Antennaria tomentosa, and small rocks next path dot with clumps each of Iris reticulata, I. alata, I. persica vars., I. Bakeriana, and I. pumila vars. 6. Ranunculus—Turban, Turko-Persian, and others; next the rock and on rock, Campanula garganica vars., C. carpathica vars., C. pumila vars., and C. muralis. 7. Anemone coronaria vars., A. St. Brigid, A. fulgens vars., A. blanda, A. appenina vars., A. nemorosa Robinsoniana, &c., with Papaver alpinum and P. nudicaule vars. planted between. 8. Alyssum Gemonense sulphureum, A. saxatile compactum, A. s. fl. pl., extending to rock edging to 6. 9. Arabis albida fl. pl., A. a. grandiflora, A. rosea, A. aubrietoides, and the variegated forms, dotted with Aubrietia Fire King, A. Leichtlini, A. Moerheimi, A. Souv. de W. Ingram. 10. Muscari in variety, dotted between Oxalis Bowei as carpet; rock edging, Sedums. 11. Groundwork, Sedum acre or S. glauca, dotted in variable patches of Sternbergia in var., Tulipa persica, T. Greigi, Fritillaria aurea, F. coccinea, F. meleagris vars., Scilla sibirica and var. alba, Puschkinia libanotica compacta, Scilla bifolia vars. 12. Cerastium grandiflorum, C. tomentosum, Callirhoe involucrata, highest of rock on top, Genista pilosa, G. prostrata, G. tinctoria fl. pl., G. hispanica pumila dotted between creeping varieties, Cytisus Ardoinei, C. Kewensis, on face of rock (*t* in section) Corydalis lutea, C. capnoides, Linaria cymbalaria alba and variegated forms, L. hepaticæfolia, and dot Saxifraga longifolia and S. pyramidalis amongst them. 13. Patches of Arum italicum, with Narcissus dotted in patches between, viz., N. cyclamineus, N. bulbocodium vars., N. minor plenus, N. triandrus vars. 14. Primula cortusoides and vars., with clumps of Camassia esculenta vars. and C. Leichtlini vars., &c. 15. Each side of cascade, Athyrium sp. and vars., with Scolopendrium vars. interspersed, and on rocks in passage to "dropping well" (here Hymenophyllum or Trichomanes) and grotto (here Osmunda sp.) other hardy Ferns. 16. Primula denticulata, P. Cashmeriana, P. involucrata, P. Sikkimensis. 17. Adonis vernalis, A. v. albidus, A. amurensis, A. a. fl. pl. 18. Æthionema stylosa, Æ. grandiflora, Æ. cordifolia, Æ. iberidium. 19. Primula acaulis vars., with Prunella Webbiana at corners, and Dactylis glomerata variegata between the former and latter. 20. Plumbago Larpentæ. 21. Gnaphalium leontopodium, G. himalaicum, and Gypsophila prostrata, G. cerastoides, G. repens monstrosa. 22. Phlox canadensis Laphami, P. ovata caroliniana, P. stellaria, P. s. erubescens. 23. Phlox amœna, P. frondosa, P. Nelsoni, P. nivalis, P. procumbens, P. verna, P. subulata (setacea), all between rocks. 24. Pentstemon glaber, P. heterophyllus, P. ovatus, dotted amongst carpet of Oxalis lactiflora, or O. floribunda alba. 25. Central rock, Cotoneaster horizontalis; outside rock, Lithospermums sp., with Thymus citriodorus (silver and golden vars.) amongst them. 26. Ajuga Brockbanki in patches, Achillea umbellata, carpeting, Viola cornuta and V. pedata may be planted near the rock. 27. Daphne Cneorum, D. Blagayana, D. petræa. 28. Ramondia pyrenaica alba, and on face of rock, or between rocks, Herniaria glabra or Arenaria montana as carpeting, and on rock, Thymus lanuginosus, T. serpyllum, Nepeta glecoma vars., Lotus corniculatus fl. pl. 29. Tiarella cordifolia and Ourisia coccinea in patches, next to path dots of Hepatica angulosa and H. triloba vars., and a few patches of Funkia argentea variegata, F. aurea marmorata. 30. Silene Schafta, S. acaulis, S. alpestris, S. maritima vars., with Saponaria ocymoides vars. on rocks. 31. Veronica cupressoides, V. epacridea, and V. Hectori dotted on a carpet of V. gentianoides, V. incana, V. repens, V. prostrata, with next rock, Gentiana acaulis, G. verna in patches with Veronica incana adjoining or between. 32. Gentianas. 33. Potentilla formosa. 34. Alpine Auriculas. 35. Œnothera macrocarpa, Œ. taraxacifolia alba, Œ. riparia, Œ. eximea in patches amongst rocks, Acæna adscandens, A. inermis, A. sorbiflora, Androsace lanuginosa, A. sarmentosa, last two genera in patches among the Œnothera. 36. Terrestrial Orchids—Cypripediums and Orchis alone sufficient in their numerous sp. and vars. 37. Round edge of pond, Saxifraga peltata, S. sarmentosa, Carex tenuis and vars., Ophiopogon jaburan, O. spicatus dotted at intervals in the largest rock points, and between Sedums and Sempervivums, Myosotis Rhesteineri. 38. Yuccas, Aloes, Agaves at intervals; Azalea procumbens, Salix serphillifloria, Juniperus prostrata and vars., Ribes prostratum, Cotoneaster

thymifolia, C. pyrenaica, for overhanging rocks and carpeting for the dot plants; for rock, Muehlenbeckia axillaris, Helianthemums, Elæagnus macrophylla, Rhododendron alpine vars., Polygala Chamæbuxus, P. purpurea, Galax aphylla, Gaultheria procumbens, Shortia galacifolia, Hypericum nummularifolia, H. repens, Lysimachia nummularia, Myosotis rupicola, M. azorica, Linnæa borealis.

Outside the rock garden the following may be associated as connecting links: Hypericum calycinum, H. Moserianum, Trilliums, Trollius sp. and vars., Omphalodes verna and var. alba, Asperulas, Tulipa sylvestris, Foxgloves, Primroses, Vincas, Crown Imperials, Narcissi, Galtonia candicans, Scilla Hispanica vars., S. nutans vars., Iris sp. and vars. pigmy or dwarf Conifers and Bamboo (Arundinaria) pumila.

ROSE GARDEN ON GRASS OR GRAVEL, PREFERABLY WITH STONE EDGING TO THE BEDS

Ground Plan—Scale, 1 inch equals 24 feet.

References: 1. White or creamy white varieties in the strip-beds forming breaks between the inner and outer designs. 2. Creamy yellow, white, &c. 3. Maroon, dark crimson, deep rose, carmine reds. 4. Scarlet, vermilion, cerise. 5. Rose, pink. 6. Hybrid Teas of the lighter shades—creamy white, creamy yellow, buff, silvery pink, blush and salmon pink. 7. Standards—weeping and ordinary type alternately, or a Rose hedge may be substituted.

The central design above 8 is of Hybrid Perpetual Roses, and the outer design above 9 of Tea- and Hybrid Tea-scented Roses. Arches may be introduced at 10.

If the garden is too large as shown, only the inner design and strips may be adopted; the beds (5) in that case being of Hybrid Tea varieties, and standards and dwarfs alternately.

Roses for Rose Garden

1. White Pet (Polyantha), Frau Karl Druschki (H.P.), both white.

2. Bessie Brown (H.T.), creamy white; Kaiserin A. Victoria (H.T.), cream and lemon; Perle d'Or (Polyantha), creamy yellow and orange yellow.

3. *Hybrid Perpetuals:* A. K. Williams, carmine and red; Alfred Colomb, bright red; Bent Cant, deep crimson; Charles Lefébvre, velvety crimson; Crown Prince, purple and crimson; Duke of Wellington, red, shaded crimson; J. B. Clark, blackish crimson and scarlet; Marie Baumann, soft carmine red; Prince Arthur, deep crimson; Madame Victor Verdier, bright crimson; Ulrich Brunner, cherry red; Général Jacqueminot, dark crimson; Prince Camille de Rohan, crimson maroon; Liberty (H.T.), velvety crimson.

4. *Hybrid Perpetuals:* Captain Hayward, intense scarlet; Duke of Edinburgh, vermilion; Dupuy Jamain, cerise; Fisher Holmes, crimson scarlet; Duke of Richmond (H.T.), rich scarlet.

5. *Hybrid Perpetuals:* Baroness Rothschild, light pink; Clio, flesh and rosy pink; Margaret Dickson, white and pale flesh; Madame G. Luizet, silvery pink; Merveille de Lyon, white, tinted pink; Mrs. John Laing, rosy pink; Mrs. Sharman Crawford, rosy pink; Susanne M. Rodocanachi, rose cerise.

5. *Hybrid Teas:* Augustine Guinoisseau, white and pale rose; Mrs. W. J. Grant, rosy pink; La France, silvery rose; Papa Gontier, rosy crimson; Cécile Brünner (Polyantha), blush and pale pink.

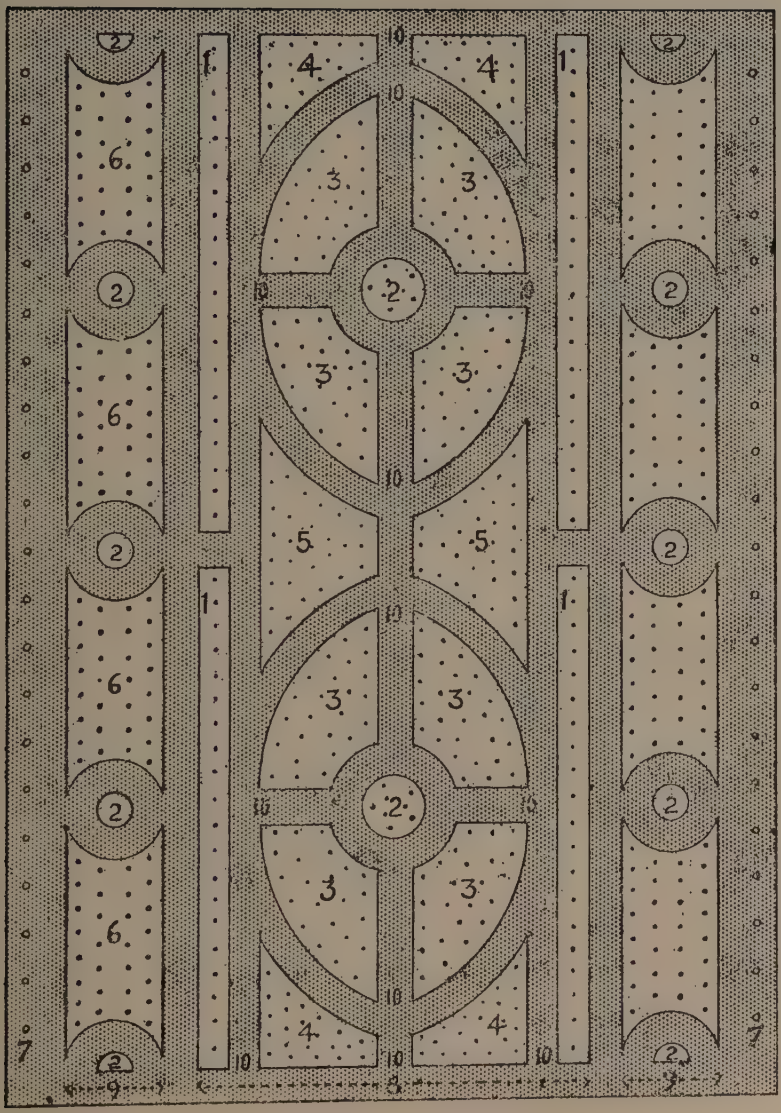
6. *Hybrid Teas:* Caroline Testout, silvery salmon pink; Gustave Regis, nankeen yellow; Killarney, flesh white, suffused pale pink; Madame Abel Chatenay, carmine rose and salmon; Viscountess Folkestone, creamy pink and salmon pink; Madame Ravary, yellow and orange yellow; Marie van Houtte (T.), white-tinted yellow, tipped rose.

7. *Standards:* Aimée Vibert, white; Caroline Testout, pink; Frau Karl Druschki, white; Fisher Holmes, crimson; La France, pale silvery rose; La Tosca, salmon and blush; Grüss an Teplitz, crimson; Gloire de Dijon, creamy yellow; Madame Ravary, yellow, and shades; Mrs. John Laing, pink; Ulrich Brunner, cherry red; W. A. Richardson, creamy yellow and orange.

7. *Weeping Standards:* Dorothy Perkins, rich pink; Lady Gay, rich pink; Hiawatha, crimson, white eye; Helène, blush; Bennett's Seedling, white; Tea Rambler, coppery pink; Alberic Barbier, pale buff.

Hedge: Austrian Yellow, Austrian Copper, China in var., Sweet Briar, Lord Penzance Briars, Rugosa, various.

Wire Fence: Any of the Hybrid Perpetuals and Climbing Tea-scented, also Climbing Polyantha classed as pillar Roses. (*See* Arches Plan.)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ROSE GARDEN OF BEDS AND ARCHES ON GRASS

Ground Plan—Scale, 1 inch equals 24 feet.

References: 1. Portion of central pathway, either pillared or arched over, side parts arched and planted with Roses of light shades. 2. Parts of central path with pergola, planted with Roses of dark shades. 3. Portions of cross-path planted with arch or pergola Roses of pink and rose shades. 4. Encircling festoons planted with arch or pillar Roses of light pink and blush shades, or mixed all shades of colour throughout. 5. Tea- and Hybrid Tea-scented Roses. 6. Hybrid Perpetual Roses. The darkest shades should be in the centre of the beds, with lighter shades on edges in both 5 and 6. If the pergola system be adopted, it would be advisable to increase the distance between the uprights from 6 to 9 feet, following a scale of 1 inch equals 36 feet, instead of 1 inch equals 24 feet.

Roses for Rose Garden of Beds and Arches on Grass

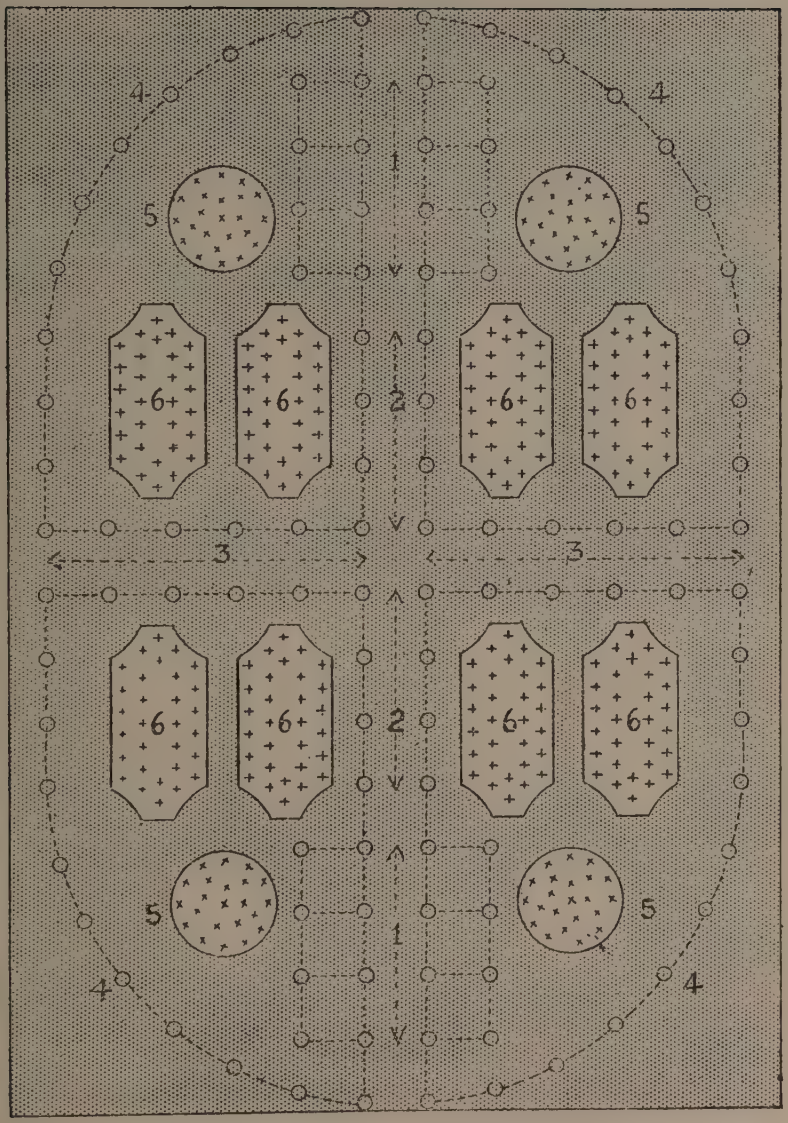
Pillar or Arch Roses

1. Light shades—Aimée Vibert, white; Claire Jacquier, nankeen yellow; Gardeniæflora, white; Madame Alfred Carrière white, tinted yellow; Madame Pierre Cochet, golden yellow to yellowish white; Perle de Neige, snowy white; Trier, creamy white; Queen of the Belgians, creamy white; Alberic Barbier, creamy white, shaded yellow; Evergreen Gem, yellow to nearly white; Jersey Beauty, pale yellow.

2. Dark shades—Ards Pillar, velvety crimson; Carmine Pillar, rosy carmine; Crimson Rambler, crimson; Françcis Crousse, crimson; Longworth Rambler, light crimson; Philadelphia Rambler, bright crimson; Reine Olga de Würtemburg, vivid red; Lady Gay, rich pink; Grüss an Teplitz, bright crimson; Purple East, dark carmine purple; the Lion, rich crimson; the Wallflower, rosy carmine lake.

3. Pink and rosy-pink shades—Dawson's Rose, rosy pink; Lady Waterlow, salmon pink; Psyche, pale rosy pink; Tea Rambler, coppery pink to salmon pink; the Farquhar, rosy pink; Mdlle. Eugenie Verdier, deep salmon pink; Minnehaha, deep rose.

4. Light pink and blush shades—Blush Rambler, soft pink; Eleanor Berkeley, pale pink; Mrs. F. W. Flight, pink, white centre; Papillon, pink and white; Alice Gray, white, tinted pink; Leopoldine d'Orleans, white, tipped red; Débutante, soft pink; Leuchstern, pink, white centre; Carissima, delicate flesh; Pink Roamer, pink, white centre; South Orange Perfection, white, striped pink.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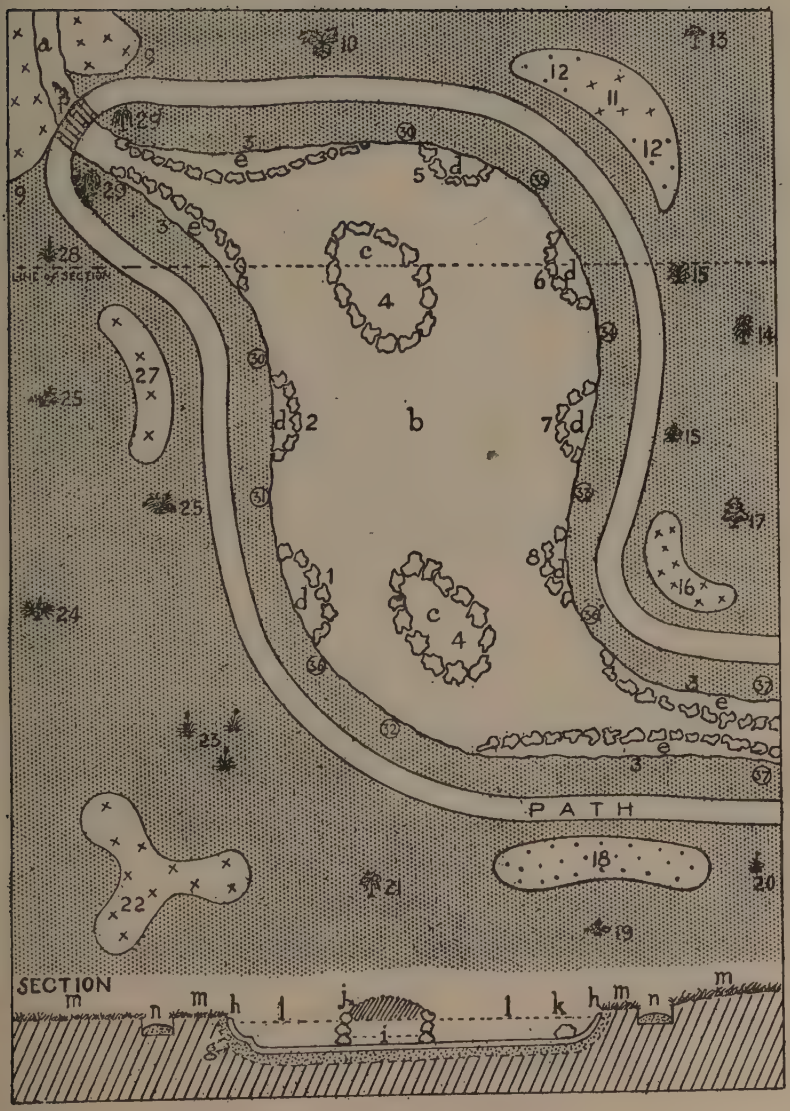
WATER LILY POND (Cemented)

Ground Plan and Section—Scale, 1 inch equals 30 feet.

Ground Plan: *a*, stream; *b*, pond; *c*, water lily basins or islands as desired; *d*, side water lily stations; *e*, shallow-water plants' receptacles; *f*, bridge.

Section: *g*, clay (desirable if ground soft, rammed hard); *h*, concrete, cemented, faced with neat cement and a little sand and washed with liquid cement; *h*, shallow-water plants' basin (one tier of stone with joints open to hold rubble and soil); *i*, water lily basin (one tier of rock as rubble and soil retainer; or, *j*, island, rocked and filled with rubble to water level, then soil; *k*, side water lily basin (one tier of rock with open joints to hold rubble and soil); *l*, water level; *m*, grass; *n*, paths.

References to Plants: 3. Inlet and outlet shallow-water plants—Aponogeton distachyon, Butomus umbellatus, Calla palustris, Pontederia cordata, Cyperus longus, Sagittaria japonica fl. pl., Villarsia nymphæoides, &c. 1-8. Water Lilies selected from Nymphæa atropurpureum, N. Ellisiana, N. Gladstoniana, N. gloriosa, N. James Brydon, N. Marliacea chromatella, N. M. ignea, N. M. albida, N. odorata, N. o. sulphurea, N. tuberosa, N. t. rubra, N. Laydekeri rosea (thirteen of the very best). 9. Narrow belt of Bamboos—Arundinaria Simoni, Phyllostachys henonis, P. mitis, P. nigra, P. viride glaucescens, with Arundinaria japonica and A. palmata at outside. 10. Rheum palmatum tanghuticum. 11. Spiræa Aruncus or S. gigantea. 12. Spiræa palmata or S. venusta. 13. Ginkgo biloba. 14. Taxodium distichum. 15. Phormium tenax. 16. Epilobium angustifolium, edged with E. album or Lythrum virgatum Rose Queen. 17. Alnus glutinosa aurea. 18. Lilium pardalinum, edged with Lobelia syphilitica. 19. Dimorphanthus mandchuricus. 20. Arundo conspicua. 21. Salix Caprea pendula. 22. Camassia esculenta or Arundo Donax, edged with Elymus arenarius. 23. Eulalia japonica zebrina. 24. Chamæreps excelsa or humilis. 25. Aralia japonica (spinosa). 26. Ferula glauca Neapolitanum. 27. Lilium giganteum. 28. Erianthus Ravennæ. 29. Salix babylonica. Semi-aquatic plants at edge of lake—30. Scirpus P. zebrinus. 31. Lysimachia clethroides or Iris Pseud-acorus variegata. 32. Caltha palustris monstrosa plena. 33. Osmunda regalis. 34. Saxifraga peltata or Primula rosea grandiflora. 35. Rodgersia podophylla or Funkia Sieboldiana major. 36. Juncus effusus aureus striatus or Glyceria spectabilis variegata. 37. Polygonum Sieboldi or P. Sachalinense to hang over streamlet.



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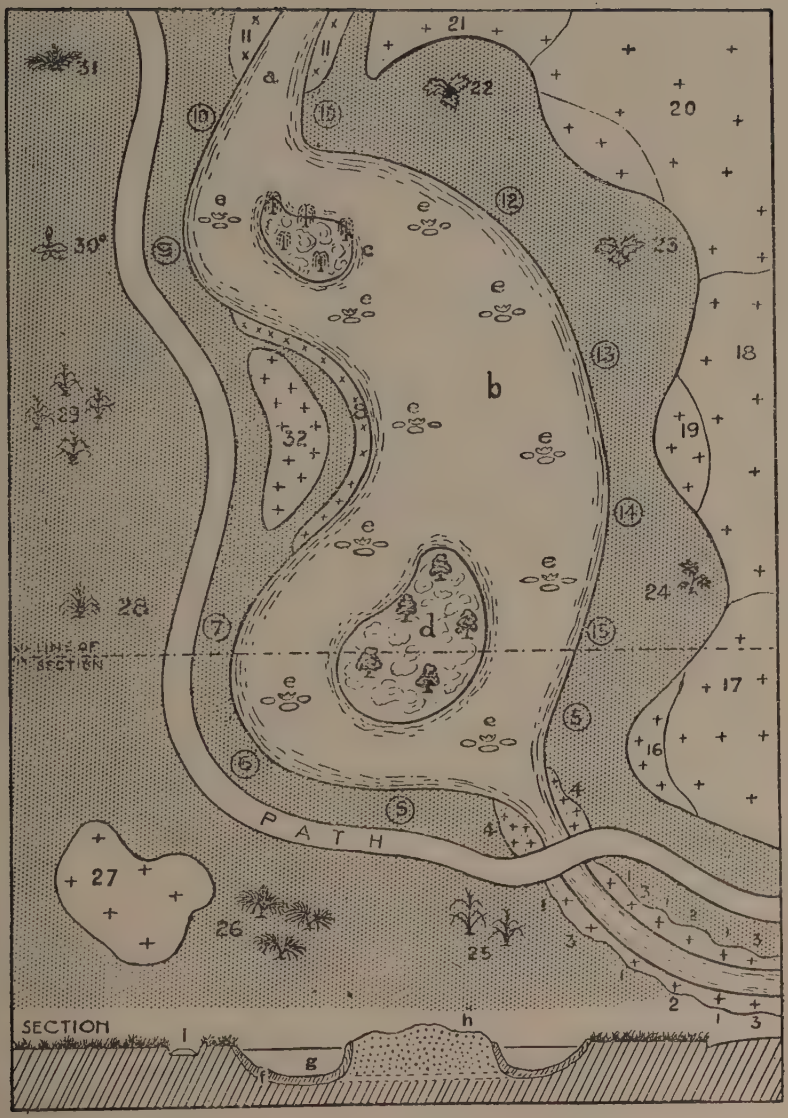
WATER LILY POND (CLAYED)—GROUND PLAN AND SECTION

Scale, 1 inch equals 30 feet.

Ground Plan: a, stream; *b*, pond; *c*, island, planted with Weeping Willows or some of plants named under *d*; *d*, island, planted with Alnus glutinosa foliis auriis, Sambucus canadensis, Betula alba pendula, Cornus alba Spathi, C. sanguinea, Tamarix vars., Ruscus racemosus (Rheum, Gunnera, and Polygonum giant species look well as a mass, and Elæagnus macrophylla is grand for margin planting); *e*, Water Lilies—in addition to list given under Cement Pond to select from—Nymphæa Frœbellii, N. odorata rubra, N. pygmæa alba, N. p. helveola, N. sanguinea, N. Robinsoni, Nuphar advena, N. luteum.

Plants on Land: 1. Iris Kæmpferi vars. 2. Cyperus longus. 3. Glyceria spectabilis aurea. 4. Iris Pseudo-Acorus and var. variegata. 5. Scirpus lacustris. 6. Gentiana pneumonanthe and G. asclepidiana. 7. Cardamine pratensis fl. pl. 8. Megasea afghanica or M. gigantea (border of them). 9. Acorus graminea variegata or Carex riparia variegata. 10. Osmunda regalis. 11. Iris aurea and Myosotis palustris. 12. Spiræa Ulmaria fl. pl. and S. palmata. 13. Trollius Fortunei fl. pl. 14. Lythrum roseum superbum. 15. Primula japonica. 16. Bambusa metake. 17. Arundinaria nitida. 18. A. Simoni or Phyllostachys henonis. 19. Bambusa palmata. 20. Phyllostachys nigra or P. mitis. 21. Phyllostachys Kumasasa. 22. Rheum sp. or Musa Basjo. 23. Gunnera manicata. 24. Podophyllum peltatum or Emodi. 25. Phragmitis communis variegata. 26. Ferula gigantea, F. glauca, F. nudiflora. 27. Spiræa Lindleyana or S. Aitchisoni. 28. Gynerium argenteum albo lineata. 29. Arundo Donax variegata or A. macrophylla. 30. Ligularia macrophyllus. 31. Oreocome Candollei. 32. Lilium canadense, L. Grayi, L. maritimum, L. pardalinum, L. superbum, any of these or all mixed.

Section: f, clay, 6 to 9 inches if puddled; *g*, Water Lily pond, preferably with stone retainers for soil (see cemented pond); *h*, island; *i*, path.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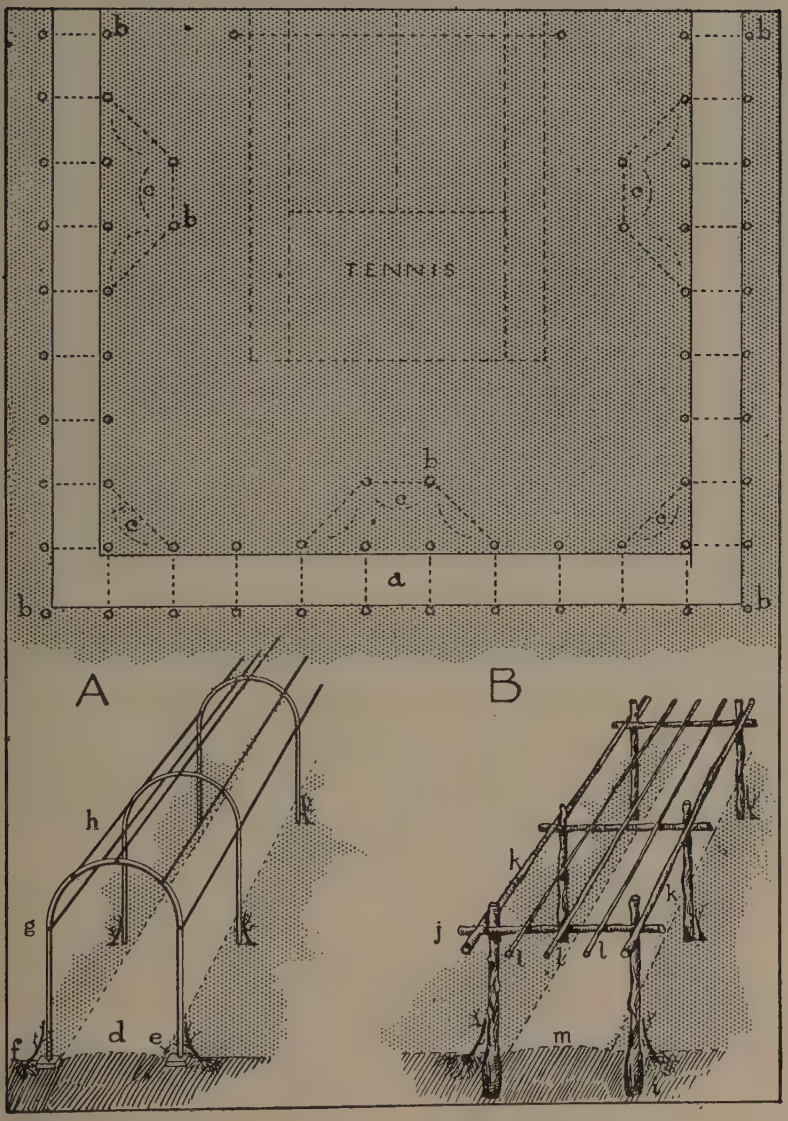
PLAIN PERGOLA BOUNDING LAWN-TENNIS GROUND

Ground Plan—Scale, 1 inch equals 24 feet.
Elevations—Scale, 1 inch equals 12 feet.

Ground Plan: *a*, path, if simple arches, indicated by dotted lines, may be omitted; *b*, small circles, posts; *c*, portable seats.

Elevations: *A*, iron arch pergola: *d*, path; *e*, footings of arches, stone if let into, cement concrete if iron footings; *f*, ground level; *g*, distance from ground level 8 feet to longitudinal lowest bar; *h*, top wires, all galvanised and painted one coat lead paint. *B*, wooden cross-bar pergola: *i*, posts, portion inserted in soil creosoted or charred and gas tarred; *j*, cross-bar, thinned at back to fit face of posts and securely nailed 8 feet from ground level; *k*, longitudinal rods, placed on cross-bars and secured to posts; *l*, light cover on top rods affixed to cross-bars; *m*, path. Simple arches are formed of the parts shown in front of the elevation, omitting the longitudinal rods, the path (*m*) in that case not being necessary, the grass running through.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RUSTIC PERGOLAS—GROUND PLAN AND ELEVATIONS

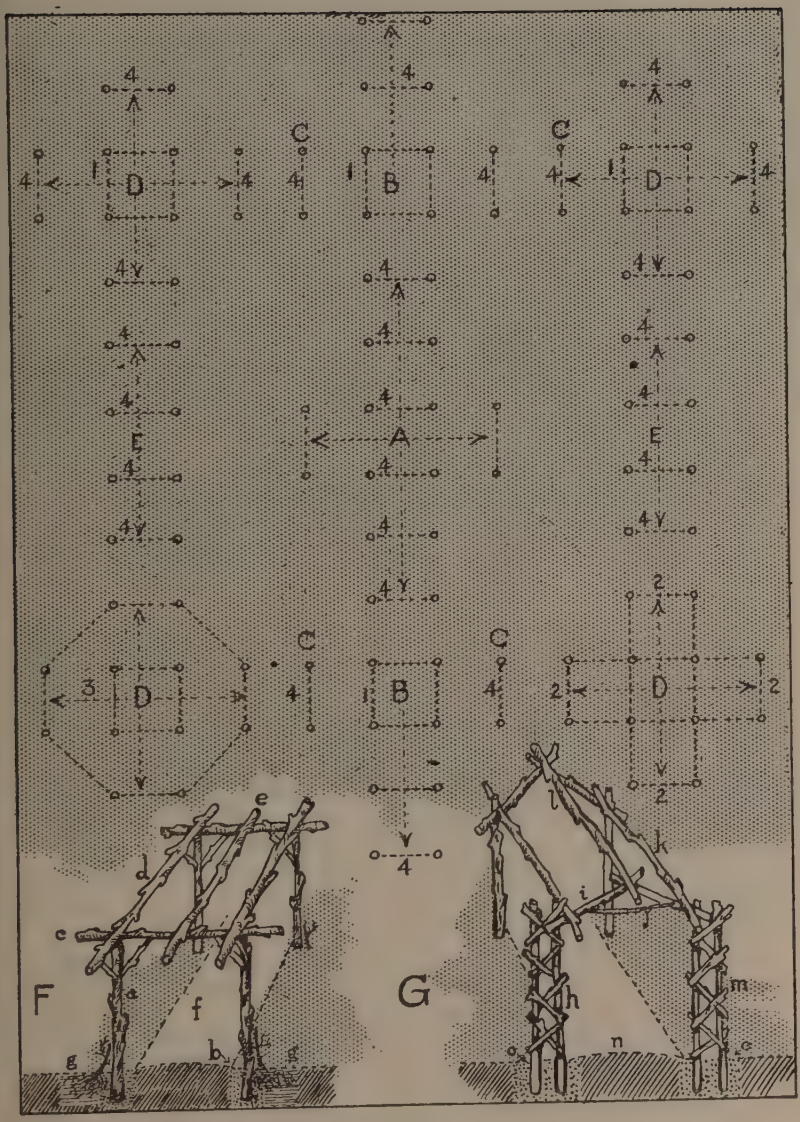
Scales: Ground Plan, 1 inch equals 24 feet; Elevations, 1 inch equals 12 feet.

Ground Plan: 1. Arching square from post to post, cross-ways and lengthwise. 2. Arching squares in both directions from central square. 3. Arching central square and from post to post around, forming four long and four short sides of octagon. 4. Arching by cross-bar to each pair of posts; all arches or cross- and longitudinal-bars indicated by dotted lines. If formed, as shown, without top or roofing bars the arrangement may be on grass throughout, but if roofed and continued longitudinally, true pergola fashion, there must be a gravel path (see *Sections*).

Arrangement for planting with Roses for colour effect: 1. *A*, crimson at centre shading to rose; *B*, pink or blush; *C*, light pink; *D*, white or creamy white; *E*, creamy yellow and orange shades. 2. *A* and *B*, all red; *C* and *D*, white or blush; and *E*, yellow shades. 3. *A*, scarlet; *B*, vermilion; *C*, *D*, *E*, white, creamy white or creamy yellow. 4. *D*, four corners—scarlet or vermilion, *A* and *B*, the centre blush including *C*; *E*, white shades. Mixed, wrong for effect; varieties selected from list given with Rose Garden for pillars, &c.

Elevations: F, Flat top: *a*, posts 8 feet above ground, 2 feet in ground, bedded and surrounded by cement concrete, *b*, necessary on soft ground and to secure stability of posts; *c*, cross-bars, halved and fitted on top of posts at points of junction; *d*, side bars, secured to cross-bars; *e*, central longitudinal top bar, all securely nailed; *f*, path, necessary if roof system here shown is adopted; *g*, bed prepared for plant.

G, span-roof: *h*, posts; *i*, span pieces from roof bearers; *j*, tie bar; *k*, side bars; *l*, ridge bar; *m*, facia posts, sometimes employed at entrance to pergola and faced with rustic oak (peeled) limbs; *n*, path; *o*, cement concrete, not less than 18 inches broad, for posts to rest on, and for surrounding them to ground level.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SHRUBBERY AND PLANTING ARRANGEMENT

Ground Plan—Scale, 1 inch equals 75 feet.

References: 1. Rhododendron Hybrids arranged in contrasting and blending colours, with tall standards dotted at intervals to relieve monotonous flatness. 1*a*. Dwarf species and varieties such as R. racemosum, R. hirsutum, R. præcox, R. ferrugineum, R. caucasicum vars., R. Nobleanum vars., Early Gem, &c. 2. Daphne Mezereum atro-rubescens, centre patch; two outside, D. M. alba. 3. Laburnum sp. and vars., with Berberis Aquifolium between, and patches of Forsythias in front of 3 and 4. 4. Cratægus Oxyacantha vars. and other sp., *white* distributed amongst the coloured both as regards blossom and fruit (haws), with Buxus sempervirens (on each side of 3) between. 5. Daphniphyllum glaucescens, single specimen. 6. Phormium tenax, clumps. 7. Azalea amœna vars., edged Euonymus radicans vars. 8. Pæonia, herbaceous vars., with Lilium and Crown Imperials between. 9. Corylus Avellana purpurea with three C. A. aurea back and sides. 10. Pyrus floribunda atrosanguinea, P. Malus Scheideckerii, P. M. Elise Rathke, with Berberis Darwini between. 11. Cerasus Padus; undergrowth, Spiræa ariæfolia. 12. Cupressus Lawsoniana var., Stewarti (golden), single specimen. 13. Azalea pontica, A. Mollis, and A. sinensis hybrids, with Liliums planted between. 14. Cornus (Benthamia) Kousa; undergrowth, Euonymus japonicus. 15. Cytisus albus. 16. Amygdalus communis amara. 17. A. persica fl. pl., with Osmanthus ilicifolius between. 18. Amelanchier in var.; undergrowth, Symphoricarpus racemosus. 19. Weigela vars. 20. Cupressus macrocarpa lutea. 21. Pampas Grass, single specimen. 22. Ericas, Menziesias, dwarf Andromedas. 23. Deutzia gracilis and other small sp. and vars. 24. Cerasus, double white. 25. Spiræa Anthony Waterer. 26. Taxus buccata fastigiata aurea variegata. 27. Hydrangea hortensis rosea and other dwarf sp. and vars. 28. Pyrus floribunda atrosanguinea, P. spectabilis and plena; undergrowth, Laurestinus. 29. Olearia Gunni or O. Haasti, or O. stellulata. 30. Viburnum Opulus sterile; groundwork, Aucuba japonica maculata. 31. Spiræa Douglasi and similar sp. 32. Ceanothus Veitchianus, or C. azureus Gloire de Versailles. 33. Retinospora plumosa aurea. 34. Lilacs, Box undergrowth. 35. Weigelas in var. 36. Tree Pæonies (Japanese vars.) 36*a*. Cytisus Andreanus and C. præcox. 37. Pyrus prunifolia and other Crabs, with Philadelphus vars. between. 38. Prunus sp. and vars., with Buxus balearica. 39. Cydonia japonica vars. or Ribes vars. 40. Thuia gigantea aurea. 41. Buddleia variabilis Veitchiana or B. globosa. 42. Rosmarinus officinalis and Lavendula spica New Dwarf. 43. Yucca recurvata. 44*a*. Ferula communis or other sp., or Eulalia japonica zebrina. 44. *Shelter Belt:* Pinus austriaca, Evergreen Oak, Golden and Silver Sycamores, Purple Beech, Fern-leaved Beech, Golden and Silver Elm, Acacias (Robinia) Birches, Populus monilifera canadensis aurea, Quercus coccinea, Hollies, and Pinus laricio and P. ponderosa. 45. Archway with openings (pergola fashion) at intervals, grass on each side; Lime (general favourite), Sycamore, and Chestnut suitable; Robinia (picturesque), Carya alba, and Purple Beech (very good), trained to iron (galvanised) arches, and after being covered supports taken away, the arch then formed by main branches, the growths pruned every year. *Note:* the path is only shown in the plan 4 feet wide (as a minimum), hence may be increased to 6 feet or more as desired for promenading use. *Lawn Trees:* 46. Abies (Pseudotsuga) Douglasii, A. D. glauca, A. D. taxifolia. 47. Abies (Picea) nobilis glauca. 47*a*. Araucaria imbricata. 48. Retinosporas. 49. Cedrus Deodara. 49*a*. C. D. verticillata glauca. 50. Catalpa bignonioides. 51. Picea pungens glauca pendula. 52. Wellingtonia gigantea pendula. 53. Thuia Lobbii, T. L. superba, Thuyopsis (Cupressus) borealis. 54. Wellingtonia (Sequoia) gigantea, Taxodium sempervirens, T. s. glauca. 55. Cryptomeria japonica elegans. 56. Cupressus macrocarpa, C. m. lutea, C. m. Crippsi. 57. Juniperus virginiana Schottii and other vars. 58. Abies (Picea) Pinsapo glauca. 59. Pinus cembra. 60. Morus alba pendula or Paulownia imperialis. 61. Retinospora Sanderi. 62. Cupressus Lawsoniana vars.

The shelter belt (44) is imperative for a bleak situation, and is best arranged in groups—not rows of one variety at equal distances, but a group of, say, Austrian Pine with Silver Birch on each side; Evergreen Oak with Silver or Golden Elm; Purple Beech with Populus monilifera canadensis aurea; Pinus ponderosa and Larix Kæmpferi, and so on.

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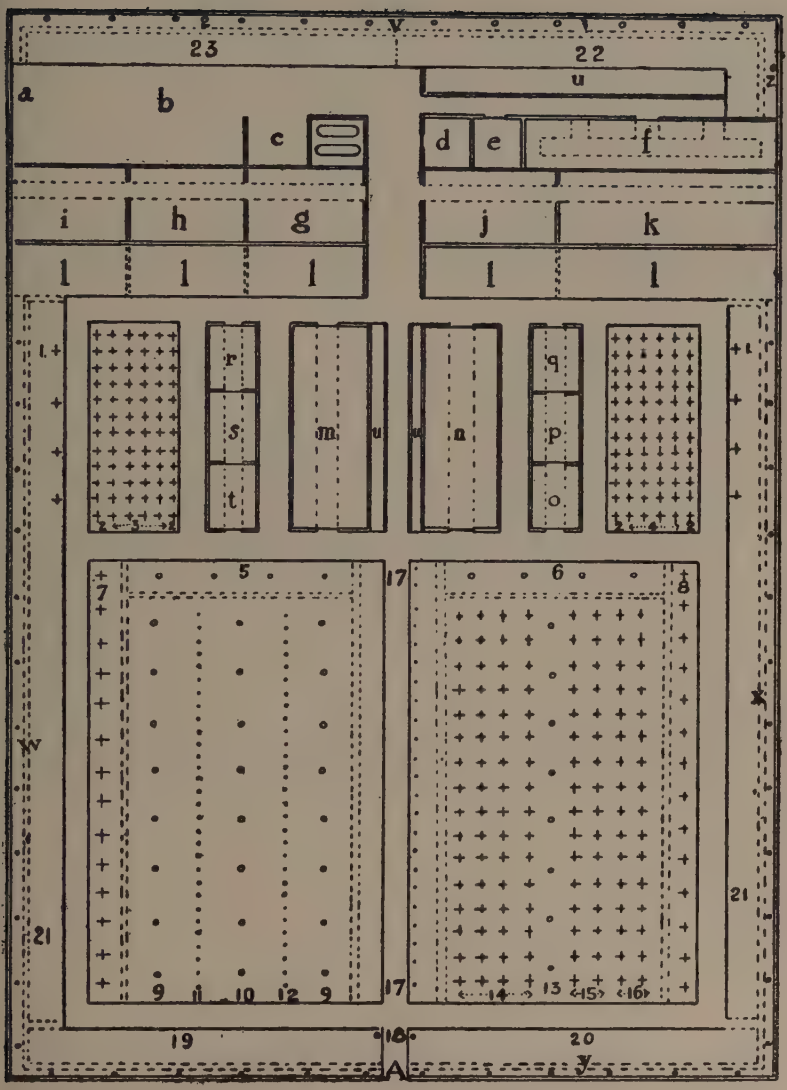
WALL-ENCLOSED SEMI-URBAN OR SUBURBAN FRUIT GARDEN WITH GLASS HOUSES

Ground Plan—Scale, 1 inch equals 45 feet.

Glass Department: *a*, cart-road entrance from public road; *b*, yard, for turning-room, compost stacking, and open shed; *c*, stokery; *d*, potting shed; *e*, storeroom; *f*, fruit room; *g*, early vinery; *h*, fig house; *i*, early peach house; *j*, Muscat grape house; *k*, late vinery; *l*, outside borders; *m*, succession peach house (trees, low standards, planted out if desired, or trellis trained); *n*, orchard house; *o*, strawberry house, tomatoes following on; *p*, tomato house; *q*, cucumber house; *r*, melon house; *s*, succession pine-apple house; *t*, fruiting pine-apple house; *u*, cinder and ashes beds for standing plants in pots on, when needed to place outdoors.

Outdoor Arrangement: *v*, south aspect of north boundary wall—1, Peaches and Nectarines; 2, Apricots, one very early Cherry and one very early dessert Plum (all dwarf trained). *w*, East aspect of west boundary wall—choice dessert Cherries and Plums. *x*, West aspect of east boundary wall—Pears. *y*, North aspect of south boundary wall—Morello and other culinary Cherries with culinary Plums; *z*, Black Mulberry; all wall trees dwarf trained.

1. Double horizontal cordon Apples (continued whole length of borders if desired). 2. Three-branch (toasting-fork) cordon Gooseberries, choice dessert varieties. 3. Three-branch (toasting-fork) cordon dessert Apple trees. 4. Three-branch (toasting-fork) cordon Pear trees; these and 2 and 3 trained to espaliers 5 to 6 feet high. 5. Espalier Apples (horizontal trained). 6. Espalier Pears (horizontal trained). 7. Bush or pyramid Apples. 8. Pyramid Pears. 9. Low standard Plum trees. 10. Low standard Apple trees on dwarfing (Doucin) stock. 11. Raspberries. 12. Loganberries and Blackberries. 13. Quinces, Medlars, Dwarf Walnut, and Cob-nut and Filbert (low standards). 14. Gooseberries. 15. Black Currants. 16. Red and White Currants. 17. Fruit tree pergola over path (Apple, Pear, and Plum trees), double vertical cordons preferable; height of arches (semicircular), 9 feet at apex above ground; sides, 6 feet high. 18. Arch of Parsley-leaved Blackberry. 19. Alpine Strawberries (St. Joseph). 20. Late Strawberries. 21. Main Crop Strawberries. 22. Early Strawberries. 23. Outdoor Tomatoes. *A*. Private entrance. Walks stone-edged, or tiles with broad footsteps; gravel on paths, or preferably asphalted.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FRUIT PLANTATION, MIXED

(About Two Acres)

Ground Plan—Scale, 1 inch equals 40 feet.

References: *a*, boundary fence (quick), or, in sheltered position, unclimbable iron or barbed wire; *b*, entrance gate; *c*, cart road; *d*, headlands. *Trees, &c.*: *e*, Damsons and Bullaces, standards, 12 feet apart, with pyramids or Cosford and Pearson's Prolific Nuts between; *f*, Flemish and Kentish Red Cherries, standards, with pyramids (on Mahaleb) between; *g*, Nuts (Kentish Cob), 12 feet apart, with Gooseberries between temporarily; *h*, Plums, standards, 15 feet apart, with bush or pyramid (temporary) between: 1 and 2, Quinces and Medlars as desired; *i*, Gooseberries or Currants (temporary), 6 feet apart; *j*, Currants, portion White as desired; *k*, Pears, standards, 20 feet apart, and pyramids midway of distance, and temporary bush, Gooseberry or Currant, between Pears; *l*, Black Currants, 6 feet apart; *m*, Apples, standards, 20 feet apart, bush or pyramid midway of distance, and temporary bush, Gooseberry or Currant between Apples; *n*, Gooseberries, 6 feet apart; *o*, Red Currants, 6 feet apart; *p*, Cherries, standards, 20 feet apart, pyramids midway on Mahaleb, and Gooseberries or Currants between Cherries; *q*, Loganberry and Blackberry; *r*, Raspberry.

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